FIVE-YEAR REPORT TO THE LEGISLATURE ON WILDLIFE

Year Ending, March 31, 1982

MANITOBA
DEPARTMENT OF NATURAL RESOURCES
March, 1983

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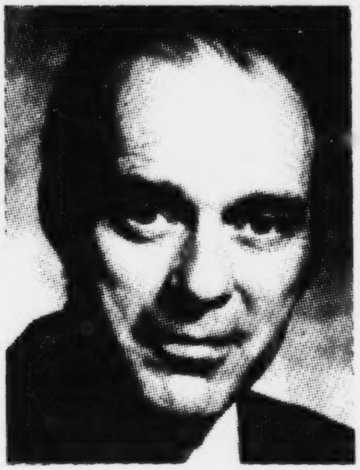
FIVE-YEAR REPORT TO THE LEGISLATURE
ON WILDLIFE
YEAR ENDING, MARCH 31ST, 1982

Honourable Al Mackling, *Minister*

March, 1983



To Her Honour
The Honourable Pearl McGonigal
Lieutenant-Governor of the
Province of Manitoba.

Your Honour:

It is with a great deal of pleasure I present to you the first Five-Year Report to the Legislature on Wildlife.

This report includes all aspects of the administration of The Wildlife Act by the Department of Natural Resources for the period ending with fiscal year 1981-82.

Al Mackling

Al Mackling,
Minister.

The Honourable Al Mackling,
Minister,
Department of Natural Resources.

Sir:

I am pleased to present the first Five-Year Report to the Legislature on Wildlife. It includes all aspects of the administration of The Wildlife Act by the Department of Natural Resources for the period ending with fiscal year 1981-82. It contains a review of the status of wildlife and an assessment of wildlife management programs.

R. L. (Nick) Carter,
Deputy Minister.

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EXECUTIVE SUMMARY

Management of Manitoba's wildlife resources is the responsibility of the Department of Natural Resources. The Department's Minister is required to provide a report to the Legislature every five years detailing the status of, and programs relating to, provincial wildlife resources.

TRENDS IN THE STATUS AND USE OF WILDLIFE

Most populations of the wildlife species found in Manitoba can meet public demands for the immediate future. Black bear and polar bear numbers are stable or increasing, as are most species of furbearers. Upland game bird populations, although currently depressed due to cyclic trends, have been plentiful and again will be in good supply in a few years time. There are, however, very important exceptions.

1) The Kaminuriak and Beverly barren-ground caribou herds have declined to dangerously low levels.

2) The provincial moose herd is in serious trouble; current demand by Treaty Indian and licenced hunters exceeds the supply.

3) Duck populations are declining and soon the numbers of mallards and some diving ducks will be unable to meet the demand of sport hunters.

4) The white-tailed deer population, although currently in a healthy state, is subject to significant declines at any time due to adverse weather and continuing habitat loss.

5) Elk populations are not able to meet increasing demands and will likely decline.

6) Woodland caribou, although sufficiently numerous to sustain current demand, could experience severe setbacks with expected development and access in remote areas.

7) Muskrats, Manitoba's most abundant furbearer, will decline as inroads on wetland habitat continue in Agro-Manitoba.

8) The long-tailed weasel and the badger, inhabitants of Agro-Manitoba, are declining due to destruction of their habitats.

REVIEW OF MANAGEMENT PROGRAMS

During the last five years, several initiatives have been taken to maintain and enhance the use of wildlife in Manitoba.

1) Enforcement of wildlife laws has become more efficient. Better techniques are being used to apprehend law breakers and penalties for wildlife infractions have been increased. Enforcement staff are focusing more attention on serious infractions such as "night-hunting", illegal sale of meat and hunter-trespass on private land.

2) Landowners are being given greater recognition for their role in maintaining wildlife and habitat. New laws prohibit hunting without permission on private land and landowners are afforded priority access to selected wildlife hunting opportunities.

3) Instrumental in the development of the Beverly and Kaminuriak Caribou Management Board, the Department continues to maintain a high profile in management of these important barren-ground caribou herds.

4) Wildlife management initiatives in northern Manitoba have succeeded in gaining the confidence of remote community residents. Department staff have established good rapport with the users of both woodland and barren-ground caribou using such techniques as multi-lingual publications (Caribou News).

5) Management and research on polar bears in Manitoba are in the forefront of similar activities conducted elsewhere in circumpolar regions. Such research led to recommendations on public and industrial use of the Cape Churchill Wildlife Management Area, a region containing the world's largest known polar bear denning area. Polar bears at Churchill have become a major tourist attraction and intensive management efforts have maintained human safety and protection for the bears.

6) Farmers and ranchers in Agro-Manitoba have continued to benefit from improvement of programs aimed at the reduction or the prevention of wildlife damage to crops and livestock.

7) The wild fur industry has made significant progress in re-establishing itself as a major industry in Manitoba. The Department has contributed to record advances in fur production through trapline development, training programs for trappers in new and better harvesting and marketing techniques and the use of humane traps. Financial returns to trappers have increased dramatically; trappers, assisted by the Department have become more effective through the Manitoba Registered Trappers Association.

8) Wildlife extension efforts have been aimed at increasing public awareness of wildlife through public service announcements, news releases, tours of key Wildlife Management Areas, wildlife displays and media coverage of topical wildlife issues. Seminars on big game and waterfowl management were well attended and award-winning standards in the production of booklets and brochures has been maintained.

9) Greater emphasis has been placed on determining the status of and affording protection of rare and endangered species of wildlife. Investigations were intiated or completed on the status of 18 species of birds and animals considered to be rare or endangered. Legislative protection was given to Ross' gulls and to cougars. Since 1981, peregrine falcons have been raised and released to the wild.

10) Through the volunteer efforts of instructors guided by Department staff, the hunter and firearm safety training program continues to graduate hundreds of safety conscious people each year, some of whom are not hunters.

Training of novices in firearm safety has achieved an enviable standard and the program can be credited for markedly reducing firearm-related accidents and vandalism.

11) The Department's efforts in protecting and developing wildlife habitat on Crown land have been modestly successful. Ongoing development of Wildlife Management Areas has benefitted wildlife (food and cover), the public (access) and farmers (forage). Consultation and negotiation with other agencies have prevented the loss or sale of many acres of wildlife habitat.

Cooperative projects with Ducks Unlimited Canada have resulted in the preservation and enhancement of many smaller wetlands and the complete or partial development of the Delta, Saskeram and Summerberry marshes. The Department nominated the Delta Marsh for world-wide recognition by inclusion in the Ramsar Convention on the Conservation of Wetlands of International Importance.

12) Early indications are that discussions initiated with Treaty Indian bands on the hunting of moose and elk will have benefits in the conservation of these big game animals.

13) Accuracy and cost effectiveness of big game monitoring has been significantly improved. Departmental achievements in using computer simulations to predict big game responses to different management strategies is rapidly becoming recognized by other Canadian wildlife agencies.

14) The new Wildlife Act of 1980 affords additional protection to endangered wildlife populations. Management of black bear and gray

(timber) wolf is enhanced by their designation as big game animals. A "Small Game" section also has been included to which species will be added.

MANAGEMENT IMPERATIVES

To achieve government's goals in managing wildlife, several hurdles must be overcome. In light of rapid changes to the habitats upon which wildlife depend, escalating demand to hunt wildlife and the need to maintain ecosystems, the following issues must be addressed:

1) Big game populations, particularly moose and elk, are in jeopardy largely due to their harvest by Treaty Indians and to illegal kill by poachers. This has reduced the capability of these species to meet current demands. Legislative changes to assist in the conservation of these big game species may be required should other initiatives fail. In addition, greater enforcement emphasis on poaching is required.
2) The future of the Kaminuriak and Beverly barren-ground caribou herds is by no means assured. Every effort must be made to restore these once great herds which now are declining to remnant numbers.
3) Continued habitat loss is the major negative aspect affecting many wildlife species. Due to this factor, long term demands for waterfowl, white-tailed deer, some furbearers and grouse may not be met. Long term commitments and solutions are required for habitat maintenance. Private landowners must receive some form of financial recompense since they play a pivotal role in the production of the

public's wildlife. Management of Crown lands must continue to support wildlife interests. Cooperation with other agencies, government and private, should be encouraged.

4) Present funding for wildlife programs will not sustain the management effort required to supply the needs of all users of the wildlife resource. New ways to generate additional revenues are required, particularly from those users of the resource who do not now contribute directly to the financial support of wildlife programs.

5) Efforts must be increased in the development of humane traps and initiatives must be intensified to combat a growing anti-trapping movement in Canada and abroad. The fate of a $10 million fur harvest, with net benefits to Manitoba amounting to $40 to $50 million annually, is in the balance.

6) Programs to assist landowners in the prevention of wildlife damage to crops or livestock and to compensate for losses, will continue to increase in importance. In the interest of preserving habitat and access to wildlife on private land, every effort must be made to deliver programs more effectively and to improve landowners' perceptions of the wildlife resource and those who use it.

7) Manitoba's proprietal rights respecting waterfowl require affirmation at the national and international level if the waterfowl resource is to be managed for the optimum benefit of Manitobans.

8) Public information about the value and importance of wildlife must be a major thrust to guard against indifference to this resource.

9) Some Manitoba birds of prey such as burrowing owls, bald eagles and great gray owls, are rare, threatened, or endangered and must be protected from biocides, destruction of habitat and vandalism.

10) Moose, elk and caribou management in forest ecosystems must be integrated with provincial forest and park management plans. Forest protection, regeneration and harvest can significantly affect wildlife production, either positively or negatively. Future production of these species will be governed by forest management more than any single factor other than harvest control.

11) A lack of ethics on the part of a few hunters who trespass, damage private property and fail to retrieve game is causing private land to be closed to hunting. Some landowners have come to view wildlife habitat as a liability. Programs encouraging an ethical approach to wildlife use must continue to be supported and promoted.

INTRODUCTION

On August 29, 1980, a new Wildlife Act was proclaimed for Manitoba. Part V of Chapter W140 of the Statutes of Manitoba 1980, c.73, requires the Minister responsibile for wildlife to provide annual and five year reports to the Legislature, containing:

> "*(a) a review of the status in the province of the animals listed in Schedule A and of such other wildlife as the Minister may select for review;*
>
> *(b) a review of the wildlife management programs implemented by the Minister and an assessment of their effectiveness;*
>
> *(c) an analysis of trends in, and a forecast of demands for, the use of the wildlife resource in the province; and*
>
> *(d) an evaluation of the capability of the wildlife resource in the province to meet anticipated demands*".

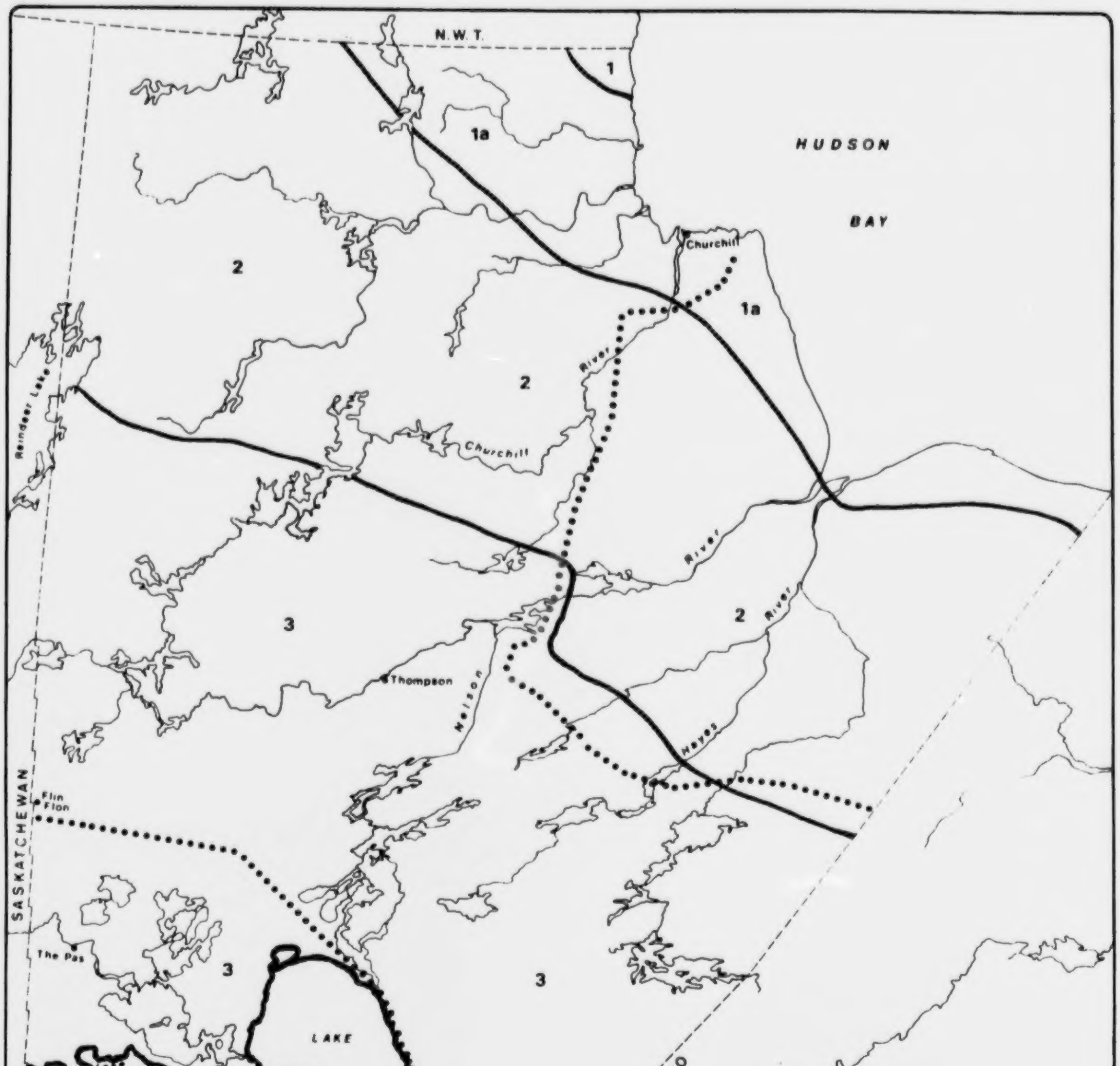
The following report provides the information required by this legislation for the period ending with fiscal year 1981-82. This is the first such report and, therefore, comprises a "bench-mark" against which future wildlife management as well as trends in the resource and its use may be evaluated.

OVERVIEW

Wildlife species including birds, mammals, reptiles and amphibians occupy various Manitoba environments (Fig. 1) from prairie to tundra and fresh waters to ocean. Some are permanent residents whereas others are seasonal visitors.

Besides its cultural and historical significance, Manitobans value and use the wildlife resource for food, income, recreation, education and science.

Manitobans harvest and consume roughly 2 million kilograms of wildlife each year, worth more than $9.0 million. Wildlife yields direct and indirect income in excess of $100.0 million from hunting, trapping, tourism and associated industries. The wildlife resource provides recreational hunting for over 80,000 people. As well, many of Manitoba's Treaty Indians rely upon wildlife for a significant portion of their food, income and cultural enrichment.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Nelson
Hayes
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Flin Flon
SASKATCHEWAN
The Pas
LAKE
WINNIPEG
Lake Winnipegosis
Lake Manitoba
Dauphin
Assiniboine River
Portage la Prairie
BRANDON
WINNIPEG
Red River
ONTARIO
U.S.A.
1. Tundra
1a. Forest-Tundra
2. Boreal Forest-Tundra Transition
3. Northern Coniferous Forest
4. Mixed Deciduous-Coniferous Forest
5. Deciduous Forest
6. Aspen Parkland
7. Prairie
Highly modified by agriculture
••••• Limit of Precambrian Shield
10 0 40 MILES
10 0 80 KILOMETRES

Fig. 1

Ecological Zones of Manitoba

The appreciation of wildlife, whether it be viewing, hunting, or merely knowing that wildlife exists, provides satisfaction to a large segment of society. Hundreds of thousands of people enjoy Manitoba's wildlife in its outdoor setting each year. As well, the presence of wildlife enriches other outdoor activities such as hiking and canoeing.

Manitoba's abundance and variety of wildlife provides for the scientific and educational study of many aspects of animal ecology. Polar bear, barren-ground caribou, Ross' gulls, and other species, attract interest from the international community.

STATUS OF WILDLIFE

INTRODUCTION

The following section describes the current status, trends in use, forecast of demand, and capability to meet demand for all of the species listed in Schedule A of the Wildlife Act.

Some species, because of their prominence, their endangered status, or their ecological importance, are treated individually. Other species are grouped, either according to biological relationships or patterns of use by Manitobans. In many cases species which have cultural or emotional significance for many Manitobans, such as some songbirds, are not mentioned by name and are grouped with many other species. This situation is unavoidable, given the lack of data regarding many of these species and the space required for individual discussion.

The status of most species include quantitative data regarding abundance, mortality rates, reproductive rates, harvest rates, etc.

These data can be divided into three categories:

a) data which have been systematically collected, providing unbiased estimates of the quantities involved and allowing a statement of the precision with which the estimate is made (e.g. aerial surveys of abundance of big game),

b) data which have been collected during the performance of other duties by field staff of the Department of Natural Resources, and which may include some bias (e.g. estimating poaching mortality in big game populations) and

c) data which have been estimated indirectly, either through computer simulation of populations or through subjective analysis of a wide range of data (e.g. estimating winter mortality in deer populations).

The status reports have been written indicating, in the case of each piece of data, which of the above three descriptions applies (shown as [a/], [b/], or [c/]).

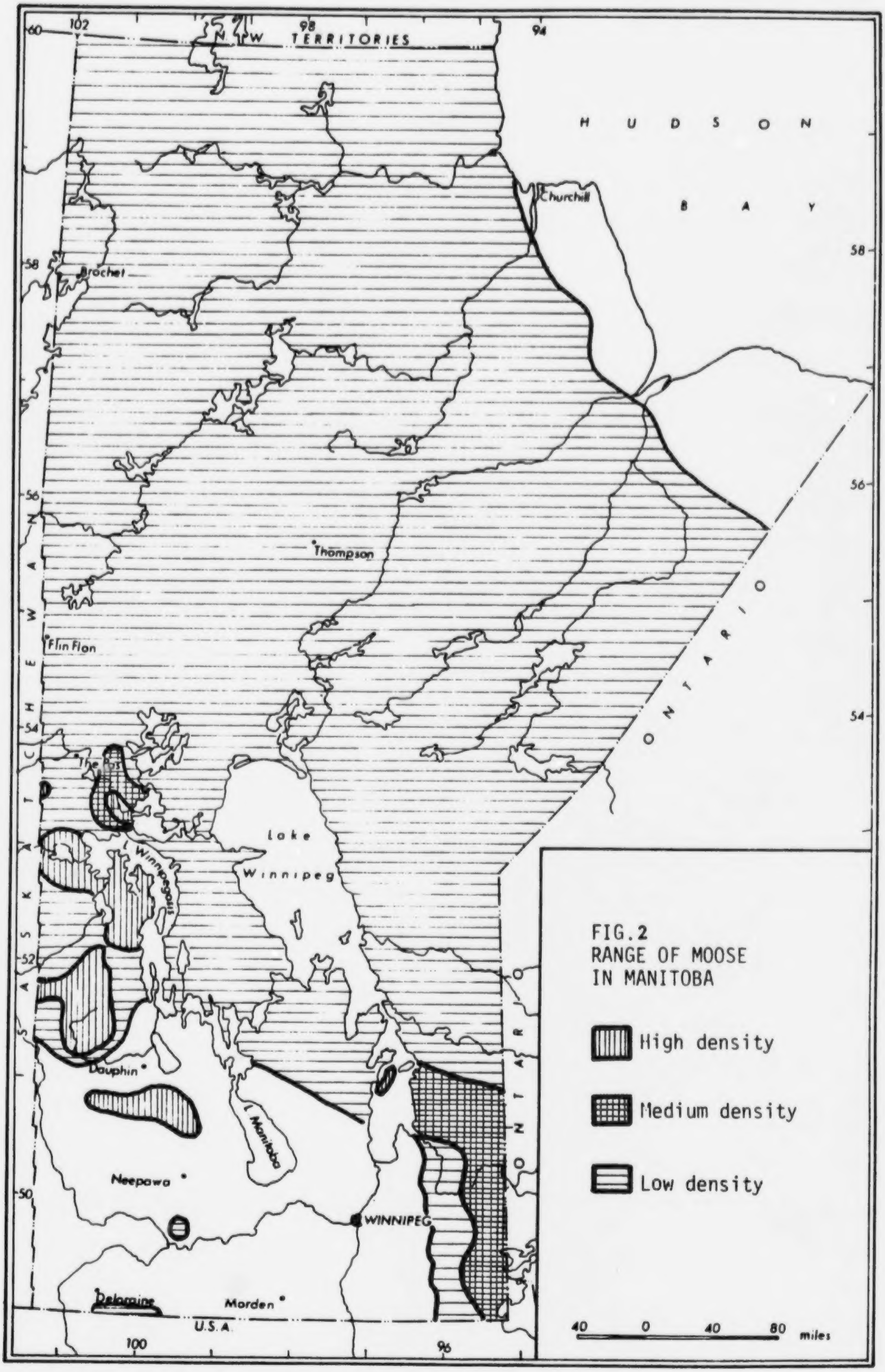
BIG GAME

Moose

Status:

The population of moose in Manitoba (Fig. 2) has decreased from an estimated[c/] 49,000 in 1973 to an estimated 28,000 in 1981. Five factors have contributed, in varying degrees, to the decline: habitat loss, adverse weather, disease, predation, and hunting.

Young deciduous forests, especially those which follow fire, form the best moose habitat. Consequently, the available moose habitat



102
98
94
60
N.W. TERRITORIES
HUDSON BAY
Churchill
58
Brochet
56
Thompson
Flin Flon
SASKATCHEWAN
54
The Pas
ONTARIO
Lake Winnipeg
L. Winnipegosis
52
Dauphin
L. Manitoba
Neepawa
50
WINNIPEG
Deloraine
Morden
U.S.A.
100
96
▥ High density
▦ Medium density
▤ Low density
40 0 40 80 miles

FIG.2
RANGE OF MOOSE
IN MANITOBA

varies both temporally and spatially. At present, habitat is not a limiting factor in moose populations.

Severe winters with deep snow can increase mortality in moose herds. Calves are likely to die as a direct result of weather conditions and all moose become more susceptible to predation. This factor can only be mitigated by reducing or eliminating the licenced hunting season in the following year.

Disease is a significant factor only in the southeastern portion of the province, where a parasite of the nervous system is common and fatal to moose.

Predation has a major impact on moose populations. Wolves prey on moose throughout the year, with the majority of kills occurring during winter. Young calves are also susceptible to predation by black bears. In moose herds elsewhere in North America, black bears have accounted for up to 50% of calf mortality. Predator control programs have the potential to enable moose populations to increase in some areas.

Trends in Use/Forecast of Demand:

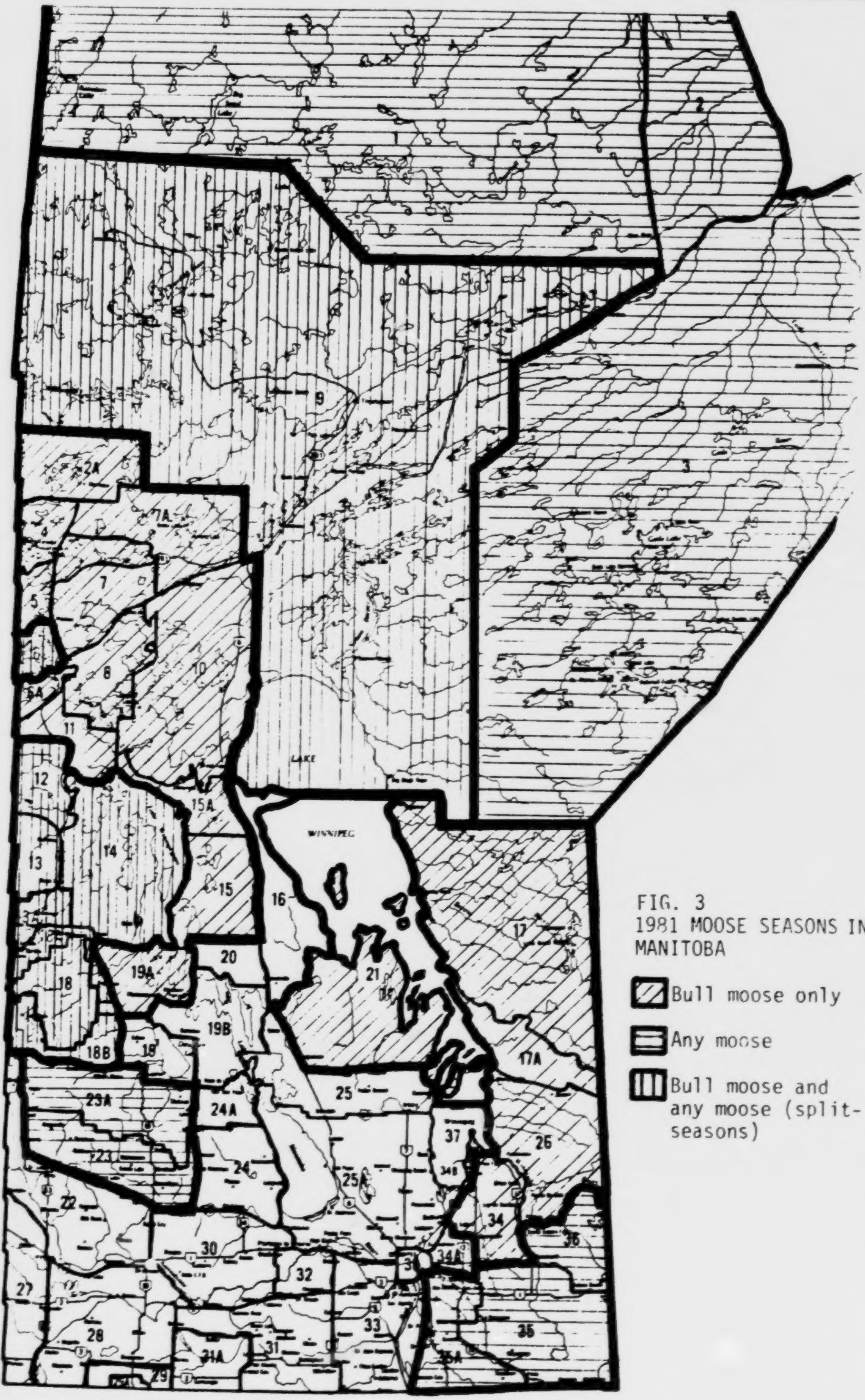
The total harvest of moose in 1981 was an estimated[a/] 4,960. Licenced resident hunters killed 1,690; non-residents of Canada killed 72; Treaty Indians are estimated[c/] to have killed 3,000. In addition, poaching accounted for an estimated[b/] 200. These estimates were derived from hunter questionnaires, checks of hunters and subjective estimates by field staff.

To ensure optimum populations and harvests, the majority of the animals killed by hunters should be bulls. The age and sex structure of the harvest can often have a more profound effect on a moose population than the total number of animals taken. Consequently, in recent years there has been a marked shift from hunting seasons in which any moose can be taken to seasons in which only bulls may be killed (Fig. 3). In some areas, such as Game Hunting Area 16 (Fig. 4), the consequence of the continued killing of cows and calves is evident. The herd is so reduced (50 moose in 4,400 square km.) that the supply for all hunters, licenced or Treaty Indian, is virtually zero.

In 1981, there were 9,472 licenced hunters and an estimated 4,000 to 7,000 Treaty Indians hunting moose. The number of licenced hunters has been controlled in recent years and the harvest has become restricted to bulls in most areas. In contrast, moose hunting by Treaty Indians has increased. In 1981, cows and calves made up 75% of the kill by Treaty Indians but only 16% of the kill by licenced hunters. Fig. 5 illustrates the Game Hunting Areas which have been closed to licenced hunting since 1971. These areas closed to sport hunting comprise 12,000 square km. of moose range.

Hunting by non-residents of Canada has been strictly controlled and directed to remote areas where there is less competition with resident hunters.

It is anticipated that the demand for moose by Treaty Indians will continue to increase. During the last decade the demand for licenced moose hunting has increased 2% annually but in recent years the number of licences issued has been restricted. For the next five years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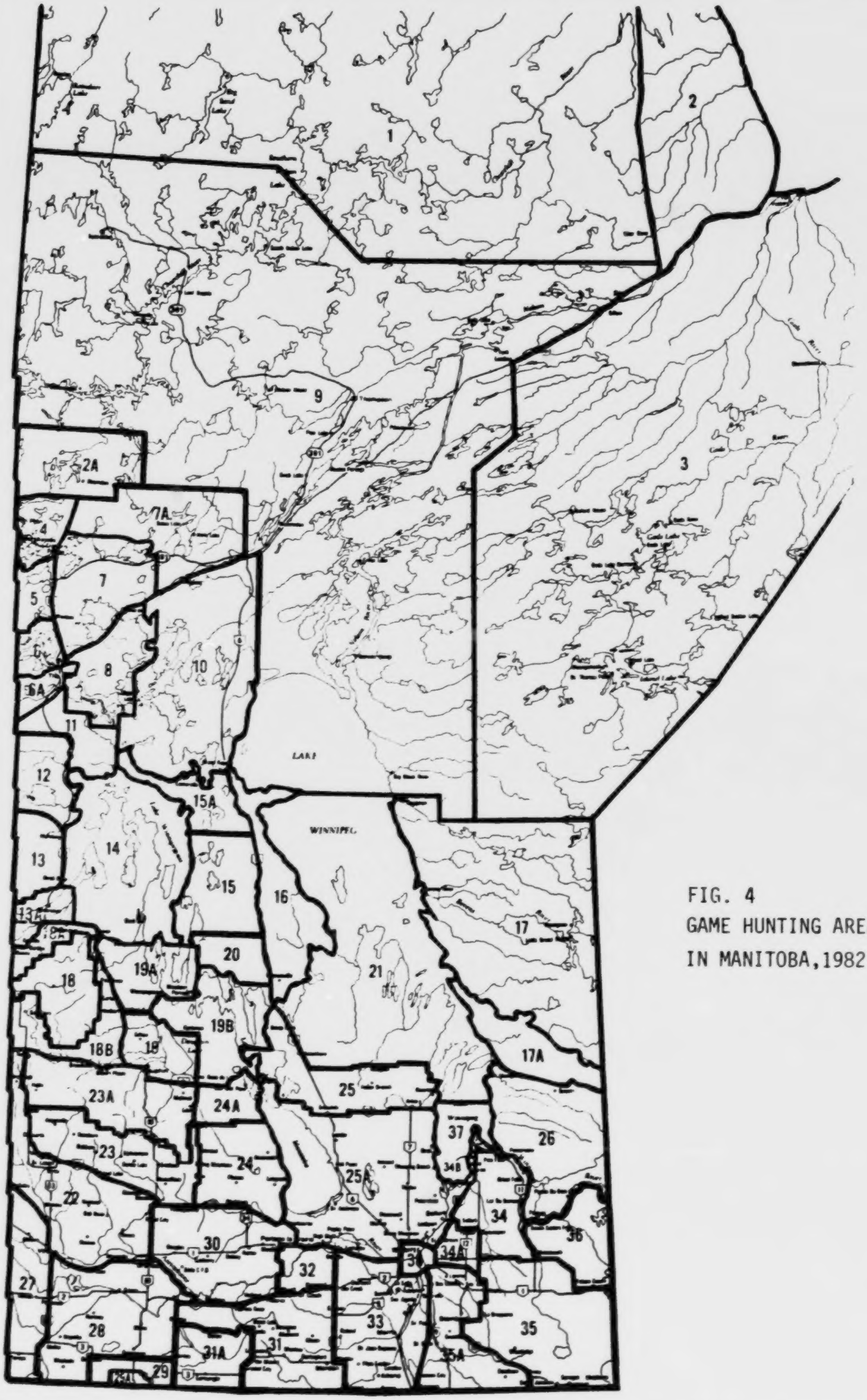
35A
36
37
LAKE
WINNIPEG

FIG. 3
1981 MOOSE SEASONS IN MANITOBA

▨ Bull moose only

☰ Any moose

▥ Bull moose and any moose (split-seasons)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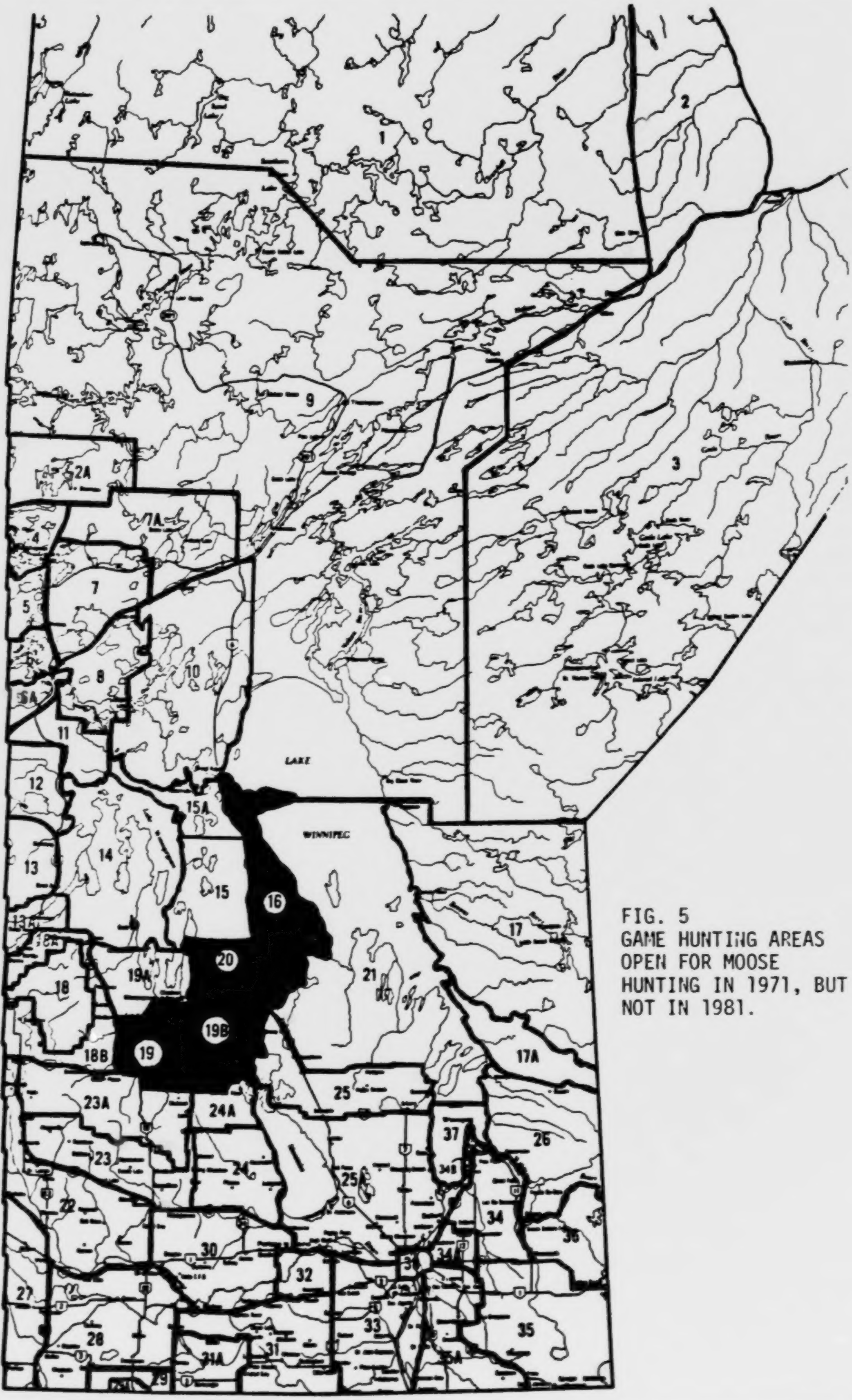
LAKE
WINNIPEG

FIG. 4
GAME HUNTING AREAS
IN MANITOBA, 1982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25A
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28
31
31A
35A
29

FIG. 5
GAME HUNTING AREAS
OPEN FOR MOOSE
HUNTING IN 1971, BUT
NOT IN 1981.

the demand for moose hunting licences is expected to follow past trends.

Capability to Meet Demand:

The moose population will continue to decline and will fall further behind demand if the magnitude and age and sex structure of losses to hunters and predators are not altered. In some areas such as Duck Mountain, the number of licences for sport hunting will have to be reduced to fulfill the demand for moose by Treaty Indians. Even complete closure to licenced hunting will not reverse the decline in the provincial herd because of Treaty Indian harvest of cows and calves. If the population is to increase, the mortality of cows and calves from hunting, black bears, and wolves must be reduced.

Department staff have recently entered into discussions with local Indian bands in an attempt to resolve the problem of over-harvest of cow and calf moose. It is hoped that as a result of these consultations, Treaty Indian hunters will reduce their harvest of cows and calves to allow recovery of local moose populations.

Elk

Status:

There are approximately[a/] 8,050 elk in Manitoba in seven herds: Riding Mountain National Park (4,800), Duck Mountain (1,750), Spruce Woods (750), Interlake (450), Porcupine Mountain (150), Red Deer River (50), and north Interlake (100) (Fig. 6). The herds in Riding Mountain, Spruce Woods and Porcupine Mountain appear to be increasing.

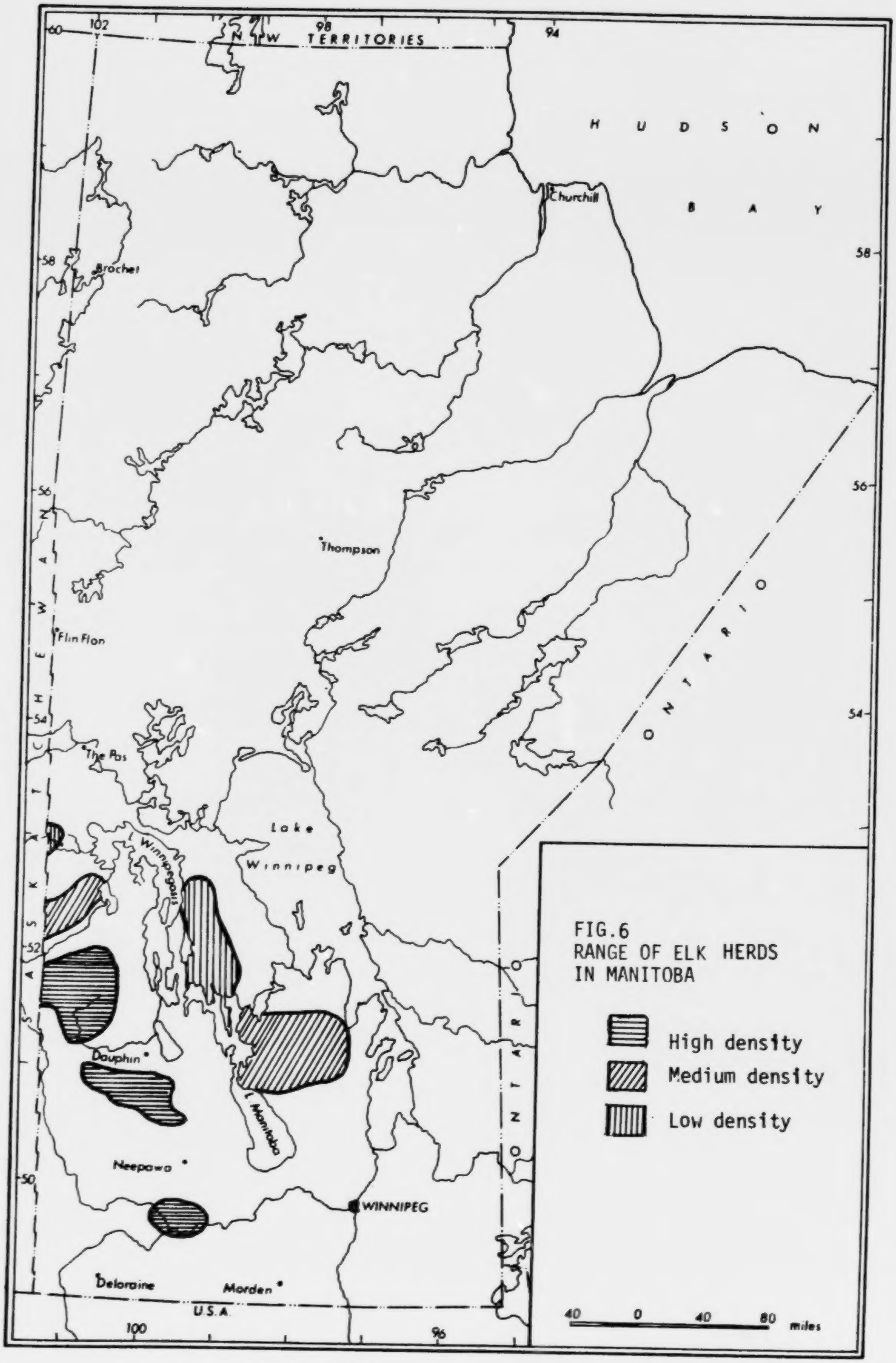


FIG.6
RANGE OF ELK HERDS
IN MANITOBA

High density
Medium density
Low density
N.W. TERRITORIES
HUDSON BAY
ONTARIO
SASKATCHEWAN
U.S.A.
Churchill
Brochet
Thompson
Flin Flon
The Pas
Lake Winnipeg
L. Winnipegosis
L. Manitoba
Dauphin
Neepawa
WINNIPEG
Deloraine
Morden
60
58
56
54
52
50
102
100
98
96
94
40
0
40
80
miles

Elk, being grazers and browsers, require a mixed habitat of deciduous forest and grassland. Much elk habitat was produced by the fires of the early 1960's. As the forests in elk range mature, their capability to support elk through winter is reduced.

Trends in Use/Forecast of Demand:

Allocation of elk licences is determined by a draw and is restricted to residents of Manitoba. Hunters who receive a licence are not allowed to apply in the following year. In 1981, licences were issued for Duck Mountain (802), Spruce Woods (100), the Interlake (50) and the perimeter of Riding Mountain National Park (1,200). Licences were not issued for Porcupine Mountain in 1981 because of uncertainty regarding the elk population following a large fire in 1980. Normally, 100 to 150 licences are allocated to Porcupine Mountain.

A new bag limit of one elk for every two hunters was introduced in 1981. There were 6,006 applicants for 2,250 available licences for the 1981 season. The harvest was estimated[a/] at 400. In 1980 special elk licences were issued to landowners in the Spruce Woods Area. These licences, which allow people to hunt on their own land, were initiated in recognition of the role of landowners in preserving wildlife habitat and to offset, in part, the damage caused by elk.

Relative to supply, the demand for elk hunting is greater than for deer, moose or woodland caribou. Presently, it is estimated[c/] that the maximum allowable harvest is 760 elk. The harvest of elk by Treaty Indians is estimated[b/] at 250 animals and is expected to increase. Most of the increase will be in Duck Mountain Provincial

Park, where there was no harvest by Treaty Indians until 1980. Cows and calves comprise 75% of this harvest. As was discussed in the report on the status of moose, a harvest which emphasizes cows and calves can have a much more serious effect on a population than a larger harvest which emphasizes bulls. Here again, Department staff are in consultations with local Indian bands to resolve the problem of over-harvest of cow and calf elk.

Poaching has increased sharply and now it is estimated[b/] to result in the loss of 160 elk annually.

In recent years, there has been an increasing interest in elk ranching for the production of antlers or meat. Two ranches are presently in existence but neither has been licenced to trade in antlers or meat; both are restricted to trade in live animals with other operators. Biologically and economically, elk ranching has potential to develop in Manitoba but current legislation prohibits the sale of meat of wild animals. In this regard, bison are no longer classed as a wild animal. Legislative changes to permit the sale of wild meat would pose major administrative and enforcement problems. Wildlife organizations have expressed strong opposition to elk ranching.

Capability to Meet Demand:

Shortages of elk are expected to continue in the next five years. Habitat management programs may have potential to lessen the shortfall, but if present hunting pressure prevails, there will be a shortfall in elk available for harvest.

Barren-ground Caribou

Status:

The Beverly and Kaminuriak herds of barren-ground caribou typically migrated through the central Northwest Territories and the northern parts of Manitoba and Saskatchewan. This migration route extended 1,200 km. from Chesterfield Inlet to the Churchill River (Fig. 7). The calving grounds are close to Kaminuriak and Beverly lakes in the District of Keewatin hence the name of the respective herds.

These herds began declining sharply early in this century. The Kaminuriak herd continued to decline sharply throughout the past decade. In 1980, the population of this herd, which traditionally wintered in northern Manitoba, was estimated[a/] at approximately 38,000 animals, representing a decrease of 25,000 since 1968. Coincident with the decline in population was a decrease in use of traditional range (Fig. 7). At present the herd scarcely crosses the border between the Northwest Territories and Manitoba.

Management of barren-ground caribou has always been complicated because responsibility for the herd rests with several government agencies and because of the ancestral diversity and rights of the hunters. Government agencies directly involved include Indian and Northern Affairs, Canada, the Canadian Wildlife Service of Environment Canada, the Wildlife Service of the Northwest Territories Department of Natural Resources, the Department of Northern Affairs, Canada, the Department of Northern Saskatchewan and the Wildlife Branch of the Manitoba Department of Natural Resources. Hunters include Inuit, Chipewyan, Cree and north-

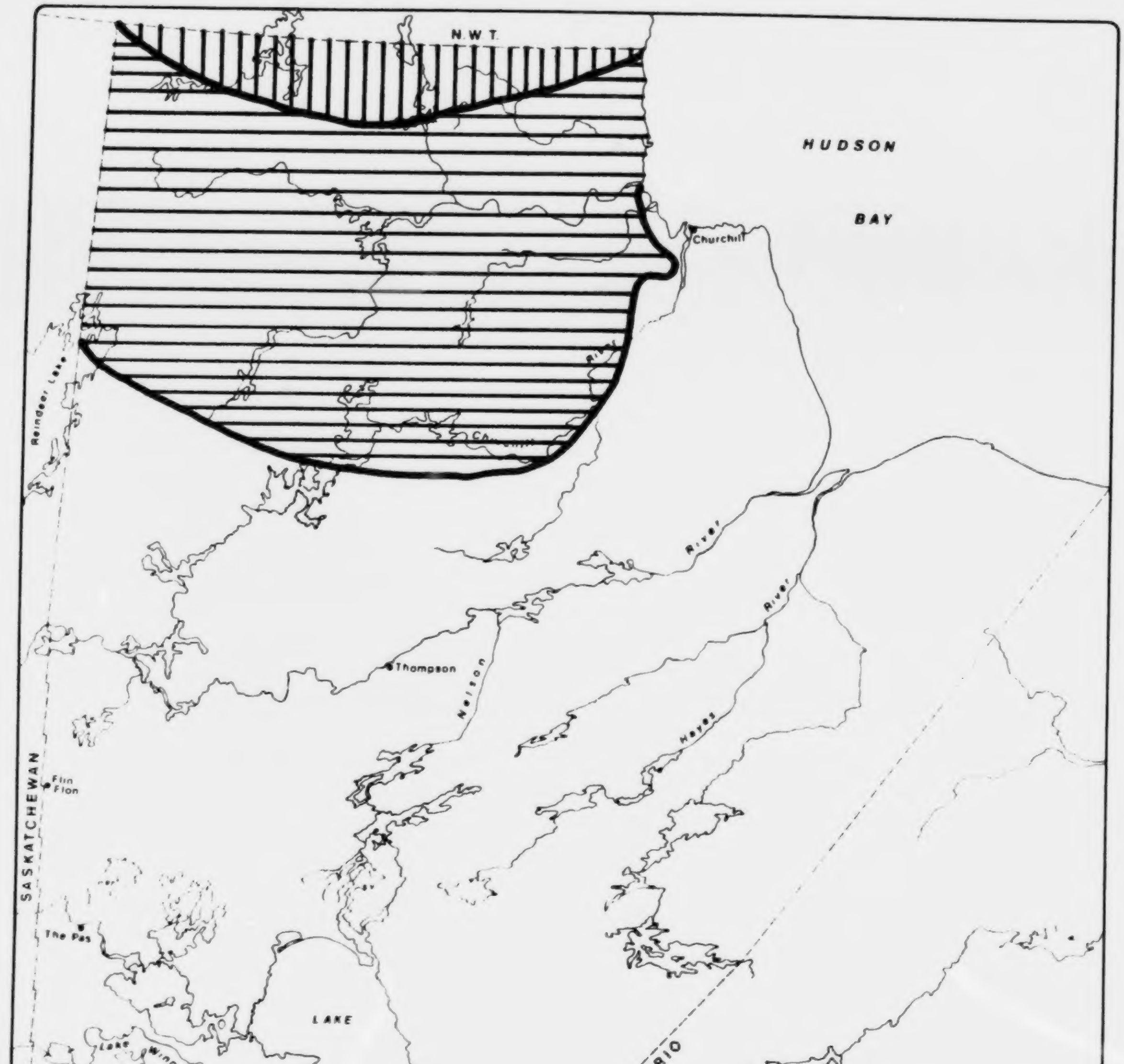

N.W.T.
HUDSON BAY
Churchill
Reindeer Lake
Churchill River
River
River
Thompson
Nelson
Hayes
SASKATCHEWAN
Flin Flon
The Pas
LAKE WINNIPEG
Lake Winnipegosis
ONTARIO
Dauphin
Lake Manitoba
Assiniboine River
Portage la Prairie
BRANDON
WINNIPEG
Red River
U.S.A
present winter range
former winter range
10 0 40 MILES
10 0 80 KILOMETRES

FIG. 7
RANGE OF BARREN-GROUND CARIBOU IN MANITOBA.

ern Metis people, most of whom, through Treaty and subsequent legislation or through convention, have retained the right to hunt the herds without restriction. Communication with the hunters, which is an integral component of caribou management, is complicated by the diversity of languages involved.

Trends in Use/Forecast of Demand:

In Manitoba, the lack of caribou has resulted in decreased use. As the population declined, caribou ceased using the southern portions of their range, rarely wintering within access of hunters from Manitoba communities. Throughout the past decade, however, more than 4,500 animals[b/] have been killed each year, principally in the Northwest Territories.

The demand for barren-ground caribou is expected to continue to be greater than the supply. This forecast is based on the premise that if the herd becomes larger, it will use more of its range and the number of communities demonstrating a demand for the species will increase.

Capability to Meet Demand:

Theoretically, the impact of continuing to harvest caribou at the annual rate of 4500 animals is that the herd will become extinct within ten years. However, complete extinction is unlikely to occur because hunting pressure will decrease significantly as animals become more scarce.

If the herd is to recover, the annual harvest must be reduced to 1,000 bulls. Regardless of the success of caribou restoration programs, barren-ground caribou cannot be expected to occur in sufficient numbers to meet the subsistence needs of northern native people. There are approximately 1,000 Manitoba Indians using caribou and potentially several thousand other northern users.

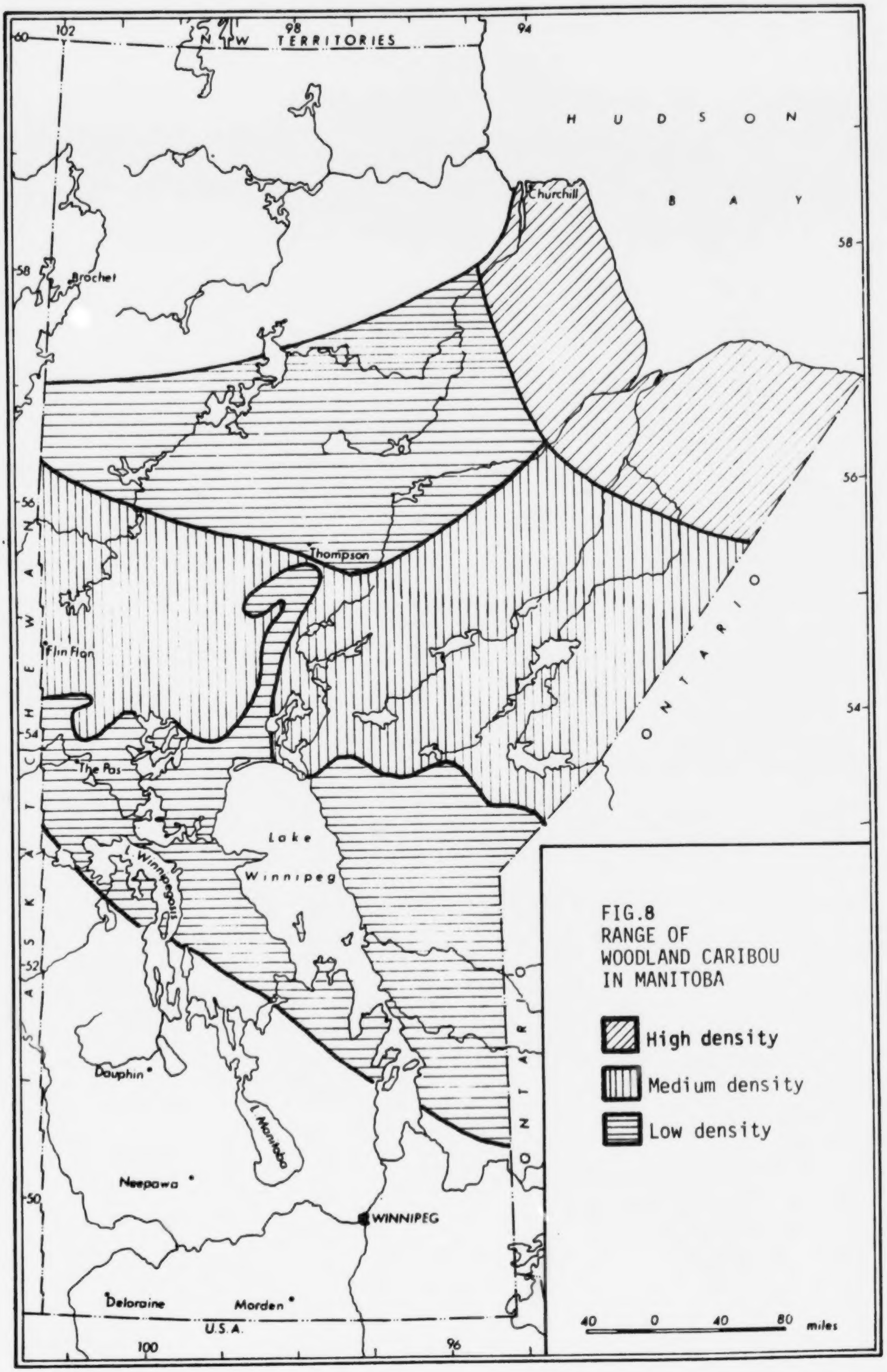
To the people of northern Manitoba, the caribou are not only economically important (present annual replacement value of the harvest is $1.5 million), but also have deep spiritual significance. Even if restored to former numbers, caribou would not be able to meet the economic demands of the North's large and well-equipped population, but there will be sufficient to satisfy the cultural needs of the native people.

Woodland Caribou

Status:

Woodland caribou are perhaps the least understood of Manitoba's ungulates. The species occurs throughout the Precambrian Shield, south of the Churchill River (Fig. 8). Nopoming Provincial Park, only 160 km. northeast of Winnipeg, supports a herd of approximately[a/] 60 animals. It is estimated[c/] that the province contains approximately 4,500 animals, with the greatest numbers occurring in the Hudson bay Lowlands.

The best caribou habitat consists of upland coniferous forest, with lichen ground cover, interspersed with tamarack bogs. This habitat typically consitutes only a small portion of the range of a caribou herd.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Morden
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SASKATCHEWAN
ONTARIO
ONTARIO
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High density
Medium density
Low density
40 0 40 80 miles

FIG.8
RANGE OF
WOODLAND CARIBOU
IN MANITOBA

Trends in Use/Forecast of Demands:

Most hunting licences are allocated by a draw system, however, there is seldom a shortage of licences for prospective hunters. In 1981, 215 licenced hunters harvested approximately 60 woodland caribou. Field staff estimate[b/] that 125 animals were harvested by Treaty Indians. In the Cape Churchill Wildlife Management Area, poaching accounted[b/] for an additional 40 animals.

Trends in sport hunting use of woodland caribou have been relatively stable due to the remoteness of their habitat. However, caribou, once found, are easily hunted and killed. Consequently, as access to remote caribou range increases, the kill is likely to increase.

The non-consumptive use of caribou is expected to increase in the Cape Churchill Wildlife Management Area and in Grass River and Nopoming Provincial Parks.

Capability to Meet Demand:

Although it is predicted that the Cape Churchill and Hayes-elson River herds can meet demand in the foreseeable future, throughout the remainder of caribou range in the province, two factors must be considered if supply is to meet demand: reproduction and habitat. If the harvest is not carefully monitored and if hunting seasons are not adjusted to keep harvests in balance with the low reproductive rate of caribou, populations could decrease to the point where there will be a long-term shortfall in supply. The second factor is the protection of habitat. Critical areas of caribou range require protection from disturbance by fire or development to ensure that local populations of caribou do not become extirpated.

White-tailed deer

Status:

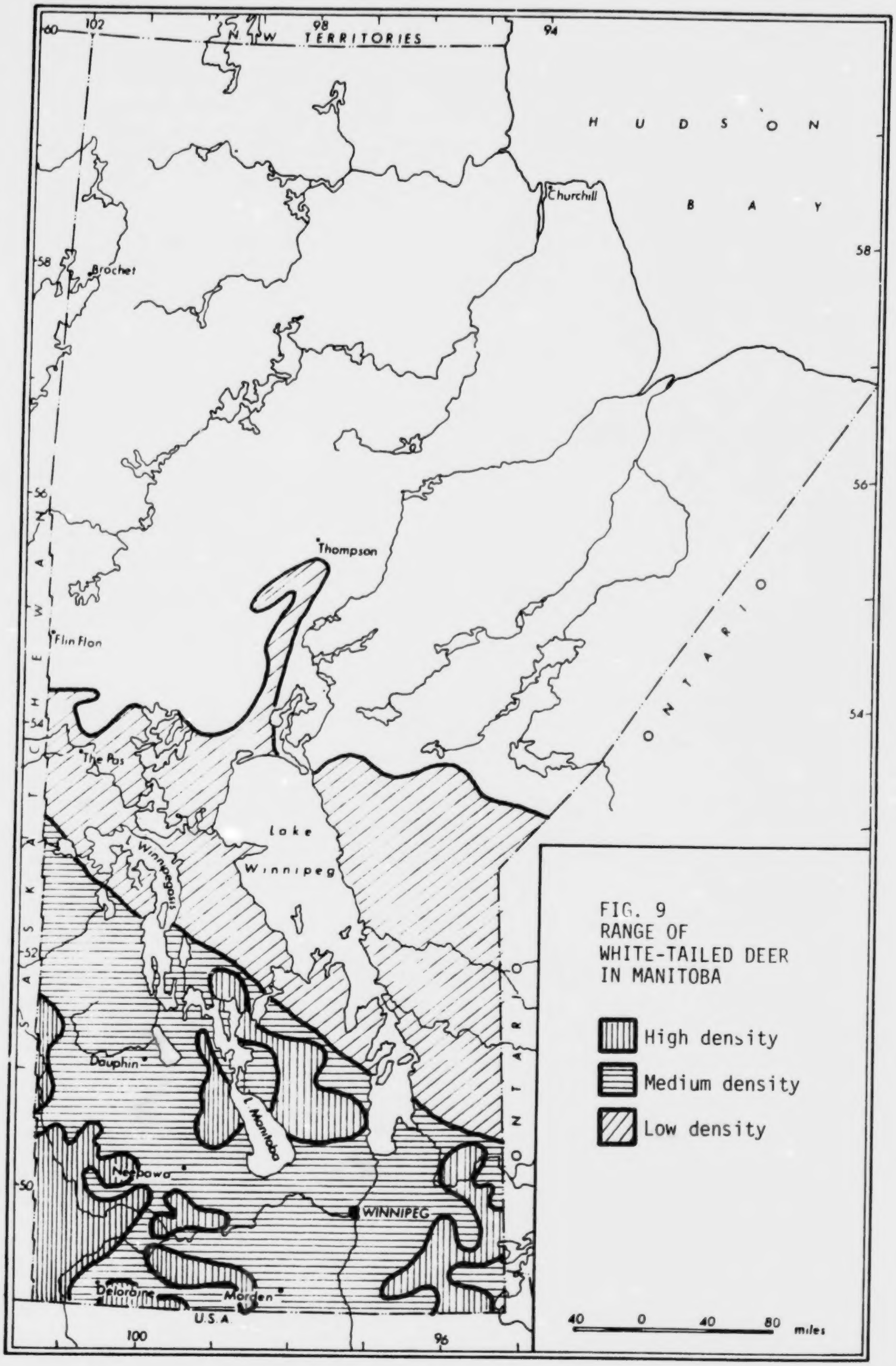
White-tailed deer are Manitoba's most abundant and popular big game animals. White-tails extended their range from Minnesota into Manitoba around 1900 and now are found as far north as Thompson. Their prime habitat is the agricultural zone (Fig. 9), where they live in islands of habitat composed of poplar bluffs, treed sand hills, river valleys and forest lands. One of these islands, situated within the city limits of metropolitan Winnipeg, boasts a herd of about 350 white-tails.

The size of a deer population changes dramatically during each year. A midsummer population of 140,000 typically drops to 85,000 by the following spring. Harsh winters, such as that of 1973-74, can cause even more serious reductions in the population. During the past decade, winters have ranged from very severe to very mild and consequently estimates of midsummer deer populations have varied from 60,000 in 1974 to 150,000 in 1981.

Deer in Manitoba are facing a steady decrease in habitat because of the clearing of woodland for agricultural and urban development. Habitat scarcity will become even more serious during the next decade when a further 20% loss is expected to occur.

A number of problems arise from the depletion of deer habitat:

1) Deer lose protection from winter weather.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Lake Winnipeg
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Dauphin
L. Manitoba
Neepawa
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WINNIPEG
Deloraine
Morden
U.S.A.
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ONTARIO
ONTARIO
High density
Medium density
Low density
40 0 40 80 miles

FIG. 9
RANGE OF
WHITE-TAILED DEER
IN MANITOBA

2) Deer turn to hay bales and stored grain for food.

3) Clearing tends to divide woodland into isolated bluffs, reducing escape-cover for deer.

4) Remaining habitat becomes more heavily grazed by cattle, reducing the supply of food available for deer to prepare for winter and to recover in spring.

Trends in Use/Forecast of Demand:

Since 1970, the number of deer licences sold has varied from 33,500 to 47,500, averaging about 40,000. Licenced deer hunting was prohibited in 1974, 1975 and 1976. Although the number of hunters is increasing by only 1% per year, the pressure on recreational hunting sites is increasing at a much faster rate. More than one-half of the firearm hunters prefer to hunt in the area west of the Red River and south of Riding Mountain National Park. Within this favoured zone, locations available for recreational hunting are becoming less abundant, not only because of the physical destruction of habitat, but also because many landowners are no longer willing to tolerate the problems caused by inconsiderate or destructive hunters.

Sales of archery licences, which reached 1,700 in 1981, have increased steadily over the last decade. Evidence from other jurisdictions indicates that this trend will not only continue, but accelerate. The number of hunters using muzzle loading guns is also increasing but at a slower rate than archers.

Manitoba deer seasons traditionally have allowed the taking of deer of either sex and of any age. In these seasons, 50% to 60% of the hunters take a deer. In 1981, white-tailed deer provided 47,500 hunters with an average of 3.7 days of hunting amounting to 178,000 recreation days. The success rate of 58% resulted in a harvest of 26,000 deer[a/]. It is estimated[c/] that an additional 8,000 deer were killed but not retrieved. Unretrieved kill is a result of hunters being unable to locate a mortally wounded animal or hunters intentionally abandoning an illegally killed animal.

In 1981, 1,721 bow hunters harvested 273 deer. The 101 hunters using muzzle loading guns shot 17 deer.

Treaty Indians harvested an estimated[c/] 12,000 deer in 1981 of which 75% were does and fawns. Their demand for deer is expected to increase to approximately 15,000 by the end of the decade.

Capability to Meet Demand:

It is only by the grace of mild winter weather during the past four years that the provincial deer herd has supported current demand. Given the current loss of habitat, the problems with uncontrolled hunting and the inevitability of harsh winters in the future, managers anticipate having to protect the herd by modifying the source of mortality under their direct control - the sport hunting harvest. In some years the kill by sport hunters may have to be reduced by as much as 50%. This can be done only by reducing the number of licences sold or by restricting the bag limit to adult male deer.

Mule Deer

Status:

Before the movement of settlers into Manitoba, mule deer were probably the only deer in the province. Mule deer were hunted regularly throughout the aspen parkland and grassland areas of Manitoba until the 1930's. At that time, records begin to appear of the local extinction of mule deer populations. By 1960, there were virtually no mule deer in the province.

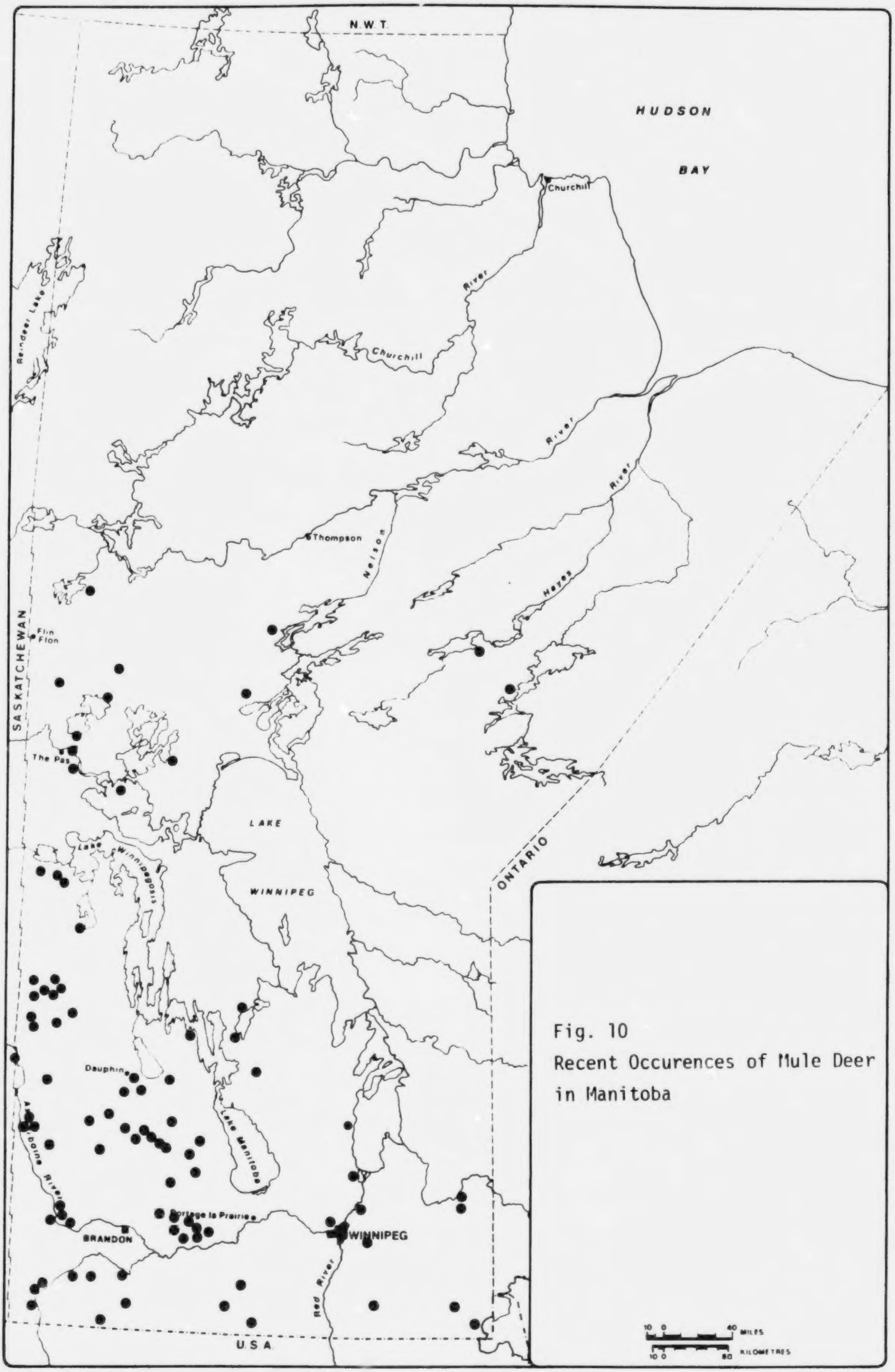
Since 1960, an average of one mule deer per year has been reported killed by hunters. About three male deer are seen each year according to reports. The majority of the mule deer shot or seen are likely to be immigrants from Saskatchewan. Most occurrences are along wooded river valleys or in forested areas in the southwest (Fig. 10). There was a small herd in the Clear Lake area until 1965.

Trends in Use/Forecast of Demand:

Mule deer are likely being shot in numbers greater than those reported to the Department but there does not appear to be a demand for consumptive use of mule deer. If mule deer were available in a restricted area for viewing and photographing, there could be a nonconsumptive demand for the species.

Capability to Meet Demand:

It is unlikely that mule deer will become abundant enough to support consumptive use. Conservation of this species could be enhanced by an information program to aid hunters in distinguishing the differ-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The Pas
LAKE
WINNIPEG
ONTARIO
Lake Winnipegosis
Dauphine
Lake Manitoba
Assiniboine River
Portage la Prairie
BRANDON
WINNIPEG
Red River
U.S.A.
10 0 40 MILES
10 0 80 KILOMETRES

Fig. 10
Recent Occurences of Mule Deer in Manitoba

ence between mule deer and white-tails. If a local herd could be established through a stocking program and protected, then some nonconsumptive demand could be met.

Polar Bear

Status:

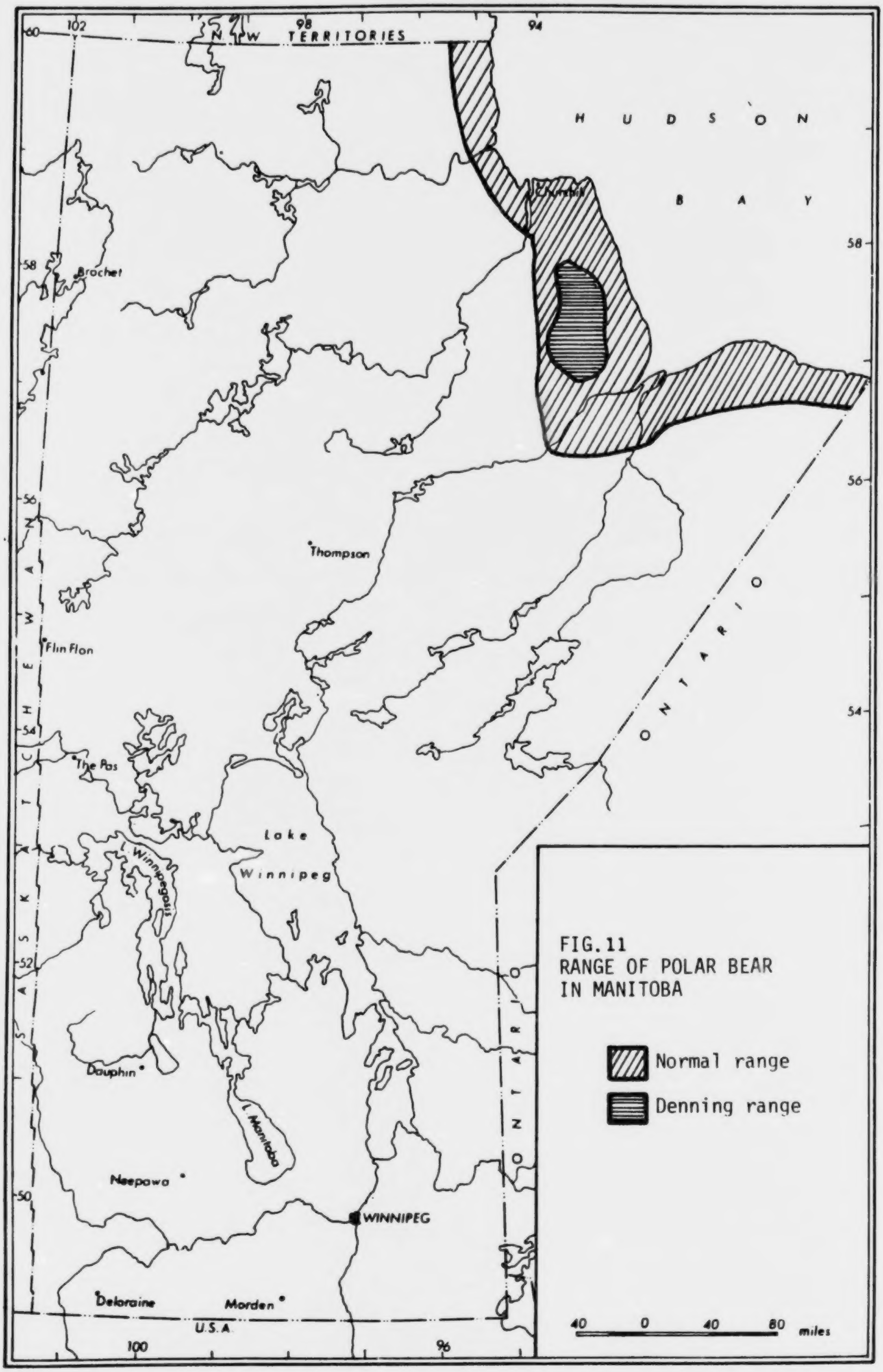
Manitoba's polar bear population increased slightly in the past decade. It is presently estimated[a/] to be 1,000 animals. The range of the species in Manitoba is shown in Fig. 11.

One of the largest denning areas in the world is located southeast of Churchill, in the Cape Churchill Wildlife Management Area (Fig. 11). Pregnant females dig dens in snowbanks in early winter and stay there with their cubs until March when families move to the ice of Hudson Bay to hunt seals. When the Hudson Bay ice melts in the summer, polar bears return to the Manitoba coastline, staying until freeze-up in late fall.

Polar bears are protected by an international agreement. The International Union for the Conservation of Nature Agreement for the Conservation and Preservation of Polar Bears, signed by the U.S.S.R., Norway, Denmark, the U.S.A. and Canada, became effective in 1976. The initial agreement had a duration of five years and has been extended for a further five years.

Trends in Use/Forecast of Demand:

Polar bears are important in Manitoba for nonconsumptive use because Churchill is the most accessible location in the world for view-



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Deloraine
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S A S K A T C H E W A N
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▨ Normal range
▤ Denning range
40 0 40 80 miles

FIG. 11
RANGE OF POLAR BEAR
IN MANITOBA

ing and photographing wild polar bears. This fact contributes substantially to Churchill's ability to draw more than 10,000 tourists each year. Churchill has been dubbed "The Polar Bear Capital of the World" where unparalleled opportunities exist for biologists to study the ecology, physiology and behaviour of polar bears.

Since first protected through regulation in the 1950's, polar bears have not been hunted in Manitoba. The only polar bears legally killed, usually about 10 each year, are those taken in defence of life and property. The number of bears killed for this reason is expected to decrease when the polar bear holding facility becomes operational in the fall of 1982.

The polar bears found in Manitoba are part of a population occupying southwestern Hudson Bay. In 1981, the potential harvest for this population was set at 90: 55 for the Northwest Territories and 35 for Mantioba. The Northwest Territories later increased its allocation to 60. Because Manitoba does not harvest polar bears, the allocation to the Northwest Territories is presently inflated by 15 bears, which can be reallocated to Manitoba on demand.

The total annual loss of 70 bears from the southwestern Hudson Bay population is comprised of 60 in the Northwest Territories and 10 in Manitoba. The annual harvest is only 7% of the population and is considered sustainable.

Capability to Meet Demand:

Barring environmental contamination or a major disruption of denning areas, the immediate future poses little threat to Manitoba's polar bears. Although the species is considered endangered on a worldwide basis, Manitoba's population is expected to remain stable.

The supply of bears for nonconsumptive use is expected to be adequate for the immediate future.

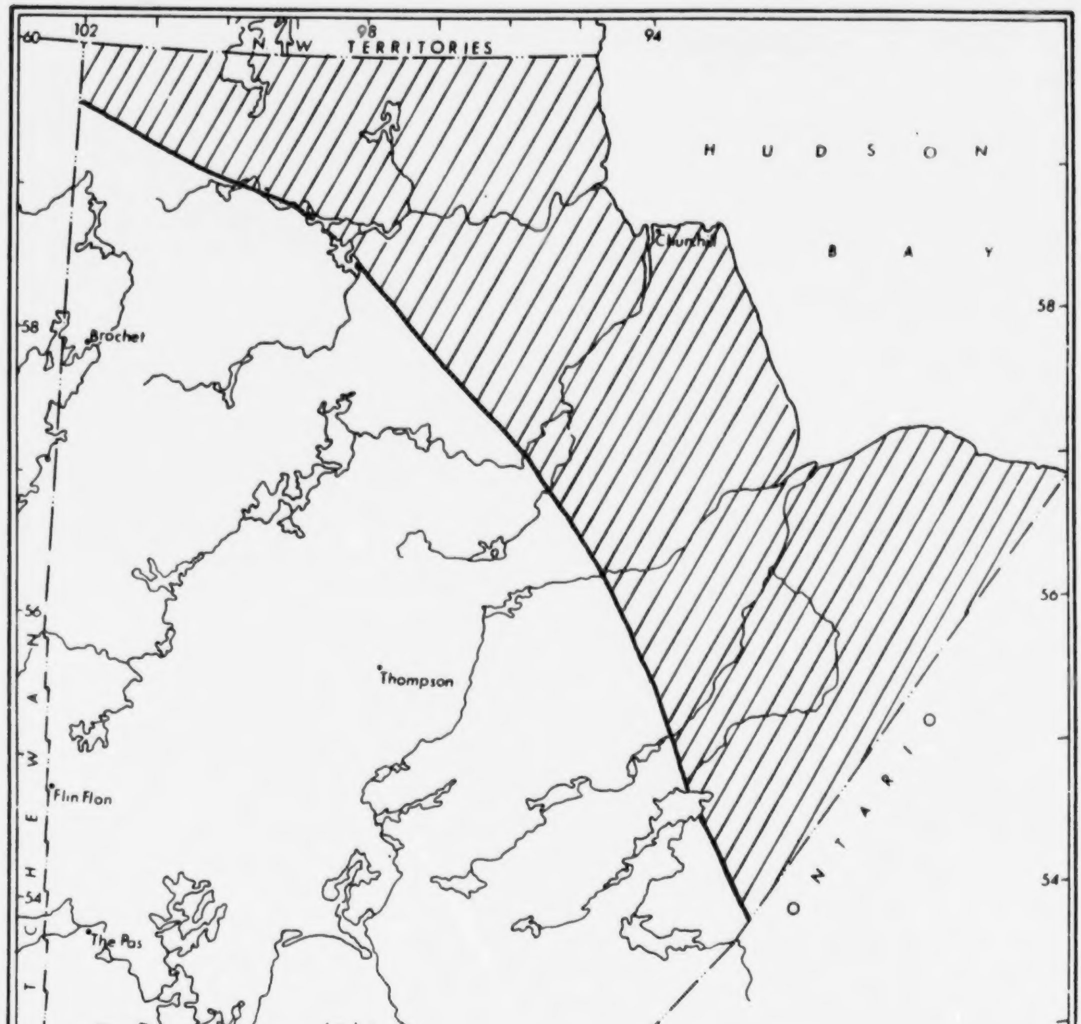
For the past twelve years, Manitoba has achieved its objective of preventing polar bears from injuring people in the Churchill area. If this excellent record of protection is to continue, research into the technology and practice of preventing damage and injury by bears will have to be continued. Failure to do so will have serious consequences, both for bears and humans.

The potential for consumptive use of polar bears has often been examined, but never implemented.

Black Bear

Status:

The black bear is common throughout the forested areas of the province. High bear densities occur in the Duck Mountain and Porcupine Mountain Provincial parks, Riding Mountain National Park, and in the Westlake, north Interlake, and southeastern regions of the province (Fig. 12). It is estimated[c/] that there are 25,000 black bears in the province. During the past decade, black bear numbers have increased. Large trophy bears, many males in the harvest and frequent occurrences of bears outside their normal habitat indicate a healthy population.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Dauphin
L. Manitoba
Neepawa
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WINNIPEG
Deloraine
Morden
U.S.A
100
96
High density
Medium density
Low density
Rare density
40 0 40 80 miles

FIG. 12
RANGE OF BLACK BEAR
IN MANITOBA

Trends in Use/Forecast of Demand:

Bears are highly regarded as big game animals throughout Europe and many parts of North America but only recently has their status as a trophy animal been recognized in Manitoba. Resident sport hunting licence sales have increased from 600 in 1971 to 3,612 in 1981. Licence sales to non-residents of Manitoba have also increased. In 1981, 385 licences were issued. Hunting occurs primarily in southeastern Manitoba and along the edge of the Riding and Duck Mountains. It is estimated[c/] that 4,000 bear hunters harvested 1,200 bears for a success rate of 30%. Trappers take approximately[c/] 400 bears each year. Three hundred[b/] bears have to be destroyed annually to protect property or to ensure human safety.

Capability to Meet Demand:

The black bear population can support a much higher demand than currently exists. If harvests continue to increase a greater management effort will be required to ensure that key populations are not jeopardized.

Gray (Timber) Wolf

Status:

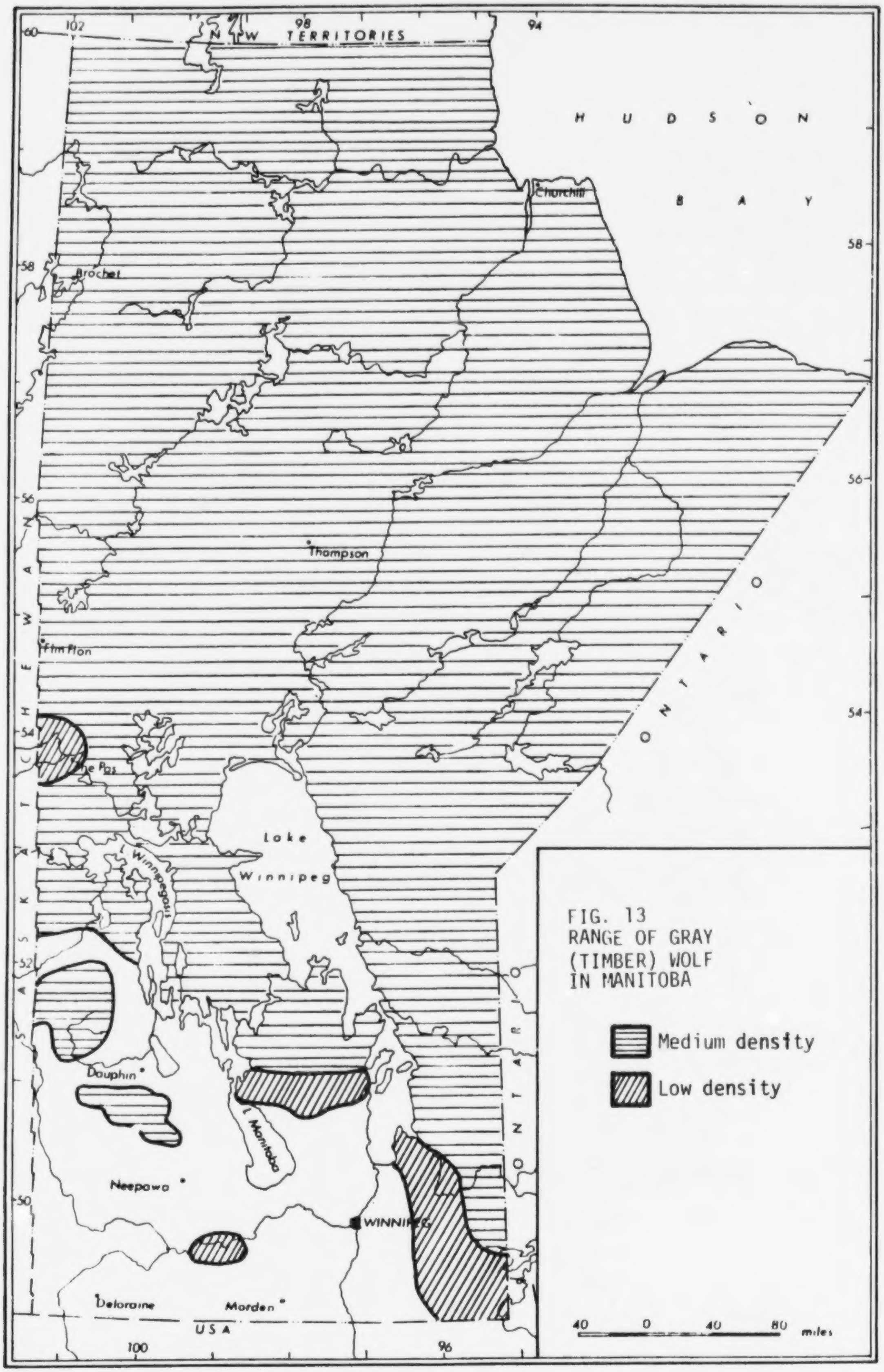
Before the settlement of Manitoba, wolves occurred throughout the province. Since that time, there has been a reduction of wolf distribution and habitat due to agricultural expansion, urbanization, forest harvest and other development. Despite this, there are still approximately[c/] 4,000 wolves in Manitoba. Today, wolves are common in large areas of forest and tundra and are present at low densities along the fringes of agricultural areas. On the east side of Lake Winnipeg, approximately[c/] 100 wolves roam over 20,000 square km. In southern Manitoba, wolf packs can be found in the Wildlife Management Areas of the central Interlake, in the Sandilands and Agassiz forest reserves, in the Whiteshell, Nopoming and Duck Mountain provincial parks and in Riding Mountain National Park (Fig. 13).

Trends in Use/Forecast of Demand:

Wolves are taken annually by hunters and trappers. Wolves have the status of big game animals in Manitoba but most wolf hunting is incidental to other big game hunting: it is estimated[c/] that fewer than 50 are killed annually by hunters. The number of wolves harvested by trappers is dependent on pelt prices and fluctuates widely. During the last five years pelt prices have been high, resulting in an annual harvest of approximately[a/] 400 wolves. Non-consumptive uses of wolves, such as viewing and listening to wolves or observing wolf sign are becoming more popular.

Capability to Meet Demand:

If wolf populations have to be reduced substantially to allow for the restoration of dwindling moose herds, there could be local shortages of wolves for non-consumptive use.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Medium density
Low density
40 0 40 80 miles

FIG. 13
RANGE OF GRAY
(TIMBER) WOLF
IN MANITOBA

FURBEARING ANIMALS

Status:

There are 18 species of furbearers in Manitoba. The majority are estimated[c/] to be stable or increasing in numbers. Only the longtailed weasel is in a serious decline, primarily because of changing agricultural practices in the past thirty years. Table 1 lists each species, its estimated population and population trend.

Trends in Use/Forecast of Demand:

Furbearing animals are important to the economic and social well-being of many Manitobans. Seventeen thousand trappers harvest pelts (Table 2) worth from $5 million to more than $10 million annually. The harvest is worth $40 million to $50 million to the Manitoba economy. Approximately 60% of the fur produced comes from 3,500 trappers in the Registered Trapline (RTL) sections. The remainder is produced by 13,500 trappers in the Open Area, located mainly in southern Manitoba. Despite the increased demand in recent years, the populations of most furbearing species either remained stable or increased. Only three species, long-tailed weasel, badger and lynx, declined.

Trends in use of furbearing animals are closely related to market demand and, to some extent, tradition. In recent years, long-haired fur has become more fashionable resulting in increased prices for species such as lynx, fox, and coyote. Demand for beaver and muskrat has remained relatively constant, but occasionally is influenced by price.

Table 1. The Status of Furbearing Animals in Manitoba.

Species	Estimated Population[c]	Population Trend
beaver	250,000+	stable
short-tailed weasel	500,000	declining
long-tailed weasel		
least weasel		
coyote	30,000	stable
fisher	10,000	increasing
arctic fox	8,000	increasing (1)
red fox (2)	50,000	stable to increasing
otter	12,000	stable
badger	4,000	declining
bobcat	300	unknown (3)
marten	12,000	rapidly increasing
mink	120,000	stable
muskrat	1,000,000	fluctuating (4)
red squirrel	5,000,000	stable
wolverine	500	increasing
raccoon	20,000	stable (5)
lynx	6,000	declining (6)

(1) On an increasing part of its population cycle

(2) Includes cross fox and silver fox

(3) On the northern edge of the range of the species - populations in Manitoba will always be low

(4) Varies with habitat conditions in any given year

(5) May suffer high winter mortality

(6) On a declining part of its population cycle

Table 2. Average Annual Harvest of Wild Fur for the Five Years Ending in 1981

Species	Average Annual Harvest	Comments
beaver	51,541	Considered under-harvested in many areas and becoming a nuissance along roadways, railways and in agricultural areas.
short-tailed weasel) long-tailed weasel) least weasel)	15,922	Harvests are well below longterm averages. Long-tailed weasel range reduced by agriculture.
coyote	7,146	Population trend is similar to fox and subject to excessive demands created by price. Current harvests exceed longterm average by 50%.
fisher	1,982	Population cycle currently increasing and species is undergoing range expansion. Demand is high due to price.
Arctic fox	689	Supply difficult to predict due to cyclic population (currently declining).

Table 2 (Continued)

Species	Average Annual Harvest	Comments
red fox	10,697	Population is increasing in northern Manitoba and stable in the south. Supply can meet expected demand.
otter	3,111	Supply is good in RTL areas and harvest is consistent with long term average of 2,000. Population is considered stable.
badger	1,097	Population is declining due to intensive agricultural development. Increased demand may result in further population reduction.
bobcat	unknown	Species is at extreme northern end of range and probably fewer than five are taken per year.
marten	1,937	Population and range are increasing and recent harvests exceed long-term average of 804.
mink	21,322	Harvest is consistent with long-term average of 20,000 animals per year.

Table 2. (Continued)

Species	Average Annual Harvest	Comments
muskrat	297,671	Population is fluctuating in response to changing habitat conditions.
red squirrel	80,109	Production is well below long-term average of 20,000. Most production is from the Open Area. The decline in harvests is due to habitat loss and lower prices.
wolverine	70	Population is increasing and expanding its range to the south and east.
raccoon	6,331	Species is at northern extent of its range and subject to high winter mortality. A shortage of denning sites is a limiting factor.
lynx	3,856	Population cycle presently in decline. The population peaked during 1978/79. This species is subject to extreme demand due to high price. If demand continues, population recovery will be slow.

Recently, anti-trapping groups have directed their efforts at the fur marketplace. Pressure is being put on foreign buyers through governments of countries where much Canadian fur is sold. If anti-trapping efforts are successful, the demand for fur will decrease. Trappers will derive less income from trapping. This situation is particularly harmful in areas where there is little or no alternative employment.

Capability to Meet Demand:

Regardless of long-term trends, in any given year variables such as population cycles and short-term changes in aquatic conditions may change the available supply of wild fur.

Problems facing muskrat are critical and without management, the capability of this species to meet expected demands will be diminished. Loss of habitat to agriculture and flooding for hydro-electric projects has had significant effects on muskrat populations.

Forestry operations can affect upland furbearers such as fisher, marten and lynx. Cutting practices, if not modified to include habitat preservation and restoration, can significantly reduce the habitat of these species.

In the Open Areas, populations are likely being harvested at the maximum allowable rate. In the RTL areas, however, it is estimated that harvests could be increased by 50% without causing populations to decline.

UPLAND GAME BIRDS

Status:

In Manitoba, upland game birds include ruffed grouse, gray (Hungarian) partridge, (wild) turkey, rock ptarmigan, willow ptarmigan, spruce grouse, sharp-tailed grouse and ring-necked pheasant. Gray partridges, pheasants and turkeys are all introduced species. Native upland birds have cyclic population fluctuations; increases and decreases are relatively independent of management or harvest programs. Their status is not monitored closely and consequently accurate estimates of populations are not available. However, when grouse were abundant in the late 1970's the total population of upland game birds was approximately[c/] 2.5 million.

By 1981, a decline in the number of sharp-tailed and ruffed grouse was evident. Gray partridge numbers were higher in recent years because the preceding winters had been relatively mild.

Turkeys are concentrated in and around farmsteads in winter, therefore they can be more easily monitored. Turkey numbers have continued to increase slowly from initial introductions in 1958. The estimated[b/] population in 1981 was about 3,000 birds comprised of flocks in south central Manitoba, the Red River Valley and the Interlake.

Although ring-necked pheasants are classed as game birds, they are normally so scarce because of Manitoba's severe winters, that an open season has not been declared in Manitoba since 1957. Wild pheasants are occasionally seen in southwestern Manitoba. Elsewhere, "wild" pheasants are usually from local game farms.

Trends in Use/Forecast of Demand:

There are about 40,000 upland game bird hunters in Manitoba. Harvest and participation vary with the population cycles of the birds. In 1981 it is estimated[a/] that approximately 100,000 birds were taken. In view of present low numbers of ruffed and sharp-tailed grouse, there likely will be a short-term decline in the number of upland game bird hunters, followed by a recovery to about 40,000 hunters when the birds again become more plentiful.

In 1981, 547 applicants sought the 425 available turkey licences.

Capability to Meet Demand:

Although the number of game bird hunters is increasing slowly, the demand for native grouse will be met, with a predicted upswing in the population cycle of ruffed and sharp-tailed grouse. Given reasonable weather, native grouse will be as abundant as habitat permits within three to four years. Although demand for wild turkeys, as measured by licence applications, marginally exceeds supply, it is believed that a substantial latent demand exists, with no likelihood that it can be met. It is estimated that 30 to 50 male turkey will be available for annual harvest.

MIGRATORY GAME BIRDS

Waterfowl

Status:

Twenty-two species of ducks and five species of geese are found in Manitoba, in a wide variety of habitats. Goose populations breed in the Hudson Bay lowlands, the boreal forest, the Interlake and the Arctic. Ducks are distributed throughout the province but the greatest diversity and density is in agricultural Manitoba. Waterfowl from Manitoba are hunted along the Mississippi Flyway through the U.S.A. to Mexico and Central and South America. Hunting is a major factor affecting waterfowl numbers but weather during the breeding season and the condition of wetlands have strong influences on the nesting success of the birds.

The fall flight of ducks in Manitoba varies annually but it is estimated[c/] to be about 3 million birds. Greater and lesser Canada geese, which breed in Manitoba, provide a fall flight of 500,000 birds[c/]. Snow geese breed primarily in the Northwest Territories and account for a further 1 million birds; about half of these stop in southern Manitoba on their way to wintering grounds.

Mallard, canvasback, redhead and lesser scaup duck populations are declining, due in part to weather and a loss of habitat but also as a result of hunting in the U.S.A.. Loss of waterfowl habitat to agriculture has reduced duck production in southern Manitoba by 30% over the last 30 years. This factor will continue to have a negative effect on the ability of prairie nesting ducks to sustain current population levels. For example, mallards in southern Manitoba have declined from

600,000[c/] in 1955 to a 1972-1981 average of 342,000 birds. Declines for other popular species of ducks appear to be similar in magnitude.

Trends in Use/Forecast of Demand:

In 1979 Canadian waterfowl management jurisdictions agreed to stabilize waterfowl hunting regulations for five years in order to identify and measure the impact of hunting and other factors upon the resource. This has tended to dampen fluctuations in waterfowl harvest over the past four years.

The current licenced harvest of ducks in Manitoba is 383,000[a/] of which approximately 200,000 are mallards. Table 3 illustrates the distribution of harvest among common duck species in Manitoba for two five year periods, 1972 to 1976 inclusive and 1977 to 1981 inclusive. The goose harvest is estimated at 195,000 birds. Approximately 41,000 Manitobans and 5,000 to 6,000 non-residents of Manitoba take this harvest of ducks and geese. Manitoba's annual demand for ducks and geese is projected to be 500,000 and 200,000 respectively by the mid-1980's.

The number of non-resident hunters is expected to increase; 2,000 more hunters (from the U.S.A.) are coming to Manitoba now than in 1976. Nonresident hunters killed 19% of the ducks and 22% of the geese harvested in Manitoba in 1981. Bag check data from the Delta Marsh indicate a 100% increase in the number of non-resident hunters over a 15 year period.

Table 3. The distribution of harvest among the common duck species in Manitoba for two five year periods, 1972 to 1976 inclusive and 1977 to 1981 inclusive.

Species	Average Harvest 1972-1976	Average Harvest 1977-1981
Mallard	171,296	206,467
Black Duck	361	784
Gadwall	11,569	13,819
Widgeon	11,757	10,003
Green Wing Teal	11,355	13,744
Blue Wing Teal	13,594	11,670
Shoveller	5,306	7,421
Pintail	16,746	16,094
Redhead	8,209	6,947
Canvasback	5,308	4,638
Scaup	26,534	18,657
Ring Neck	10,960	8,766
Goldeneye	3,277	2,180

The influx of non-resident hunters to the Oak Hammock and Whitewater Lake areas is of emerging concern. Both of these areas attract large numbers of migrant geese. Competition for hunting opportunity between Manitoba residents and non-residents is increasing. Non-resident licence sales in Boissevain have increased from 465 in 1980 to 955 in 1982.

The Treaty Indian harvest of waterfowl is unknown but a subjective forecast[c/] of demand is that 10,000 ducks and geese will be required by 1985.

Capability to Meet Demand:

An overriding factor in the supply of waterfowl (particularly ducks) is the quality and quantity of habitat. Drainage of wetlands, use of associated uplands and periodic droughts, along with heavy exploitation, have already induced long term declines in some duck populations. These factors, coupled with current trends in hunter harvest make it unlikely that duck populations can meet future demand. It must be realized that a much larger harvest of Manitoba-raised waterfowl is taken in the U.S.A. than in Canada. Given projected habitat availability and current levels of use in the U.S.A., Manitoba's projected demand for ducks is not likely to be met. Goose populations, however, can meet expected demands, assuming there are no significant changes in U.S.A. goose harvest rates, or the condition of Arctic breeding grounds.

SMALL GAME ANIMALS

No small game animals have been designated under the Wildlife Act. Although there are an estimated 41,000 people hunting animals such as rabbits, hares, squirrels, woodchucks and magpies, there are no seasons or limits. Species which may be included in this division in the future are snowshoe hares, jackrabbits, cottontail rabbits, gray squirrels and woodchucks.

AMPHIBIANS AND REPTILES

Status:

There are six species of amphibians and reptiles listed in Division of the Wildlife Act: northern leopard frog, tiger salamander, red-sided garter snake, western plains garter snake, snapping turtle and painted turtle. These animals are most commonly found in the southern portion of the province, although the northern leopard frog and the red-sided garter snake have been recorded as far north as the border with the Northwest Territories.

Trends in Use/Forecast of Demand:

Three species, the tiger salamander, the northern leopard frog and the red-sided garter snake are commercially harvested in the Interlake and Westlake districts and sold to biological supply companies in Canada and the U.S.A. In 1973, approximately fifty tonnes of leopard frogs (valued at $110,000) were collected. Unfortunately, a disease known as redleg has decimated leopard frog populations and no commercial harvest of frogs has been possible since 1975. The latent demand continues to be high.

Between 1975 and 1981 an average of 35,000 garter snakes (valued at $12,500) was harvested each year. Commercial demand for garter snakes remains high.

Perhaps the most significant contribution of amphibians and reptiles is the diversity they add to Manitoba's fauna. Public appreciation of this fact is increasing: snake pits in the Narcisse Wildlife Management Area have been drawing a growing number of visitors.

Capability to Meet Demand:

Manitoba's leopard frog population cannot meet current or anticipated future demand because of the debilitating impact of redleg. It is not possible to predict whether populations will recover in the foreseeable future from the effects of this disease.

Snake and salamander populations are expected to continue to meet present demands.

PROTECTED SPECIES

Pronghorn (Antelope)

Status:

The pronghorn was formerly common on grasslands of southwestern Manitoba. By 1900, however, there were no pronghorns left in the province.

Within the past 20 years, some pronghorns have been seen in extreme southwestern Manitoba. A lone animal was observed near Good-lands in 1963. In early July, 1972, a pair which appeared to be a female and a yearling or a fawn was sighted several times west of Pilot Mound. Later in July, a pair of pronghorns was seen near Lyleton. Sightings such as these continue to occur in the southwestern part of the province.

Trends in Use/Forecast of Demand:

There is no use of or demand for pronghorns in Manitoba.

Capability to Meet Demand:

Current land use practices in Manitoba preclude the existence of wild pronghorn in the province. Small pronghorn herds could possibly be maintained for public viewing and photography in areas such as the Lauder Sandhills Wildlife Management Area, the Shilo Military Reserve, or the Ellice-Archie Community Pasture.

Cougar

Status:

Manitoba's cougar population is thinly scattered over much of the province. Sightings have been reported from the United States border to Thompson and from the Ontario border to the Saskatchewan border. During the past decade, 20 to 40 sightings have been reported each year. Although cougars are sometimes seen in grassland or agricultural areas, most sightings occur in forested areas which contain herds of white-tailed deer, the primary prey of cougars.

Despite the regularity of sightings, there is only one recent specimen, an adult male shot near Beausejour in 1973.

Trends in Use/Forecast of Demand:

In Manitoba, there is no use of cougars in the conventional sense but there has been an enthusiastic response to the Department's public information program regarding cougars. This demand for information appears likely to continue.

Capability to Meet Demand:

The population of cougars in the province is expected to maintain its present status. The demand for information regarding the species may be met by maintaining the Department's program of recording sightings and by providing information to the public.

White Pelican, Double-crested Cormorant, and Other Colonial Water Birds

Status:

The size of Mantioba's pelican population has increased from from approximately[c] 7,000 breeding pairs in the late 1960's to approximately 16,000 breeding pairs in 1981. Manitoba is unusual in having such a healthy population of pelicans because the species is considered endangered in the rest of Canada. Most of the colonies are on islands in lakes in the central area of the province.

The size of the province's cormorant population, also concentrated on islands in lakes in central Manitoba, increased during the past ten years. In 1979, there were 66[a] colonies of cormorants in

Manitoba, with nearly 23,000 active nests.

The general status of Manitoba's other colonial water birds (gulls, terns, grebes, herons) appears to be stable.

Trends in Use/Forecast of Demand:

Although pelicans were formerly killed for their feathers, there has been no consumptive use of colonial water birds in Manitoba since approximately 1900. The nonconsumptive use of these species is extensive. Scientists, photographers and bird watchers are drawn to breeding sites because they can be sure of seeing many birds at close range. If colonies are disrupted by carelessness or vandalism, large numbers of chicks can be killed. In extreme cases, the entire annual reproduction in a colony can be destroyed by one disruptive incident.

Capability to Meet Demand:

Nonconsumptive demand can be met if current populations remain stable. However, if large numbers of colonies are destroyed by excessive disturbance by visitors, changes in water levels, or by intentional destruction of eggs and chicks, there could be a need for programs to protect colonies and regulate access to them.

Greater Prairie Chicken

Status:

For a short period between the start of agriculture in Manitoba and the development of modern agriculture, greater prairie chickens were common in southwestern Manitoba. Since the disappearance, in the early 1950's, of a group which was located near the edge of Delta Marsh, there have been no confirmed sightings in the province.

Trends in Use/Forecast of Demand:

Some groups of hunters would like to re-establish greater prairie chickens in Manitoba. The Transcona Fish and Game Association began such a project in the 1970's which was unsuccessful.

Capability to Meet Demand:

There does not appear to be any possibility of meeting either consumptive or nonconsumptive demand for greater prairie chickens in Manitoba.

Hawks and Owls

Status:

There are approximately 30 species of hawks and owls that occur in Manitoba. It is difficult to estimate their populations. Some occur only as accidental migrants (barn owl) or winter visitants (snowy owl, gyrfalcon, rough-legged hawk) and their numbers vary with food availability elsewhere. Although there are no known nesting records for Manitoba for the endangered peregine falcon, a few are seen each spring and fall. An estimated[a/] 110 pairs of burrowing owls nest on grassland in southwestern Manitoba. The great gray owl, rare in Canada, is considered fairly common in extreme southeastern Manitoba and it is not uncommon across the boreal forest of the north. The bald eagle, lost as a breeding species in much of eastern Canada and the U.S.A., has a small but stable breeding population in Manitoba. The ferruginous hawk, now considered threatened in Canada, probably nests in southwestern Manitoba although few sightings are reported each year. In addition to those rare and endangered species mentioned above, it is believed that the sharp-shinned hawk, Cooper's hawk and merlin populations have been declining. However, no status surveys have been undertaken.

Trends in Use/Forecast of Demand:

Birds of prey have attracted a great deal of public attention in Manitoba. Originally, these birds were taken freely for sport and trophies. To protect birds of prey, Manitoba (by policy since 1963) issues permits for taxidermy of these species only when it can be shown that the specimens are going to be used for educational purposes.

Capability to Meet Demand:

Hawks and owls are at the top of the food chain and hence can be affected by environmental pollutants such as dieldrin and DDT. The development of new chemicals and continued use of chemicals that can affect birds of prey is of deep concern in that their effects can directly influence their populations. Continued loss of habitat will also influence the abundance of some species of hawks and owls. So long as hawks and owls continue to be protected as they are now and the effects of biocides do not result in population decreases, the supply for nonconsumptive use will continue to meet demand.

Other Protected Birds

Status:

A number of species of birds are protected under The Wildlife Act and the Canada Migratory Birds Act. These species include jays, ravens, kingfishers, loons, wading birds, shorebirds, jaegers, gulls, doves, nighthawks, woodpeckers, and songbirds.

The status of provincial populations is not known for most of these species. Many are commonly seen in their preferred habitats. Several other species are known to be fairly common, yet are seldom seen. For example, the American robin is a common bird on the lawns of Winnipeg but it is seldom seen in the boreal forest. The American golden plover, by contrast, could be considered rare in Manitoba but it is locally common in the Churchill area.

There are several species that, due to habitat destruction, environmental pollutants or human disturbance, may be in jeopardy. These include the Baird's sparrow, grasshopper sparrow, loggerhead shrike, upland sandpiper and chestnut-collared longspur.

Trends in Use/Forecast of Demand:

These species offer the public opportunity for a wide range of nonconsumptive uses such as feeding, recreational observation, education and biological research. Measuring trends in this type of use of wildlife is difficult because users are less conspicuous and less regulated than consumptive users such as hunters and trappers. If trends in sales of natural history material are indicative of actual use, the nonconsumptive use of wildlife is growing rapidly.

Capability to Meet Demand:

Protected birds will continue to meet nonconsumptive demands as long as they are afforded protection and their habitats remain intact. Some habitats may be in jeopardy due to agricultural and industrial development. The Department attempts to facilitate nonconsumptive use of protected birds by supplying information on their natural history, abundance and location. To this end, some work has been done on a dozen or so of these species, but in general their status is poorly known. Funding and staff restrictions preclude further studies being carried out at this time, although the Wildlife Branch is providing some support to a private committee attempting to produce a comprehensive bird book for Manitoba.

Rare Reptiles and Amphibians

Status:

This group includes three species which are rare and local in their occurrence in Manitoba; the western hognose snake, the northern prairie skink and the plains spadefoot toad. All of these species occur in a number of locations in southwestern Manitoba but the majority of these animals are in the Spruce Woods area.

Trends in Use/Forecast of Demand:

These species contribute to the diversity of the fauna of Manitoba. The viewing public is offered the opportunity to see and learn about species which are curiosities in Manitoba.

Capability to Meet Demand:

The Department is supporting studies on the ecology of the northern prairie skink and the western hognose snake. Public demand for use of these species can be met if these animals and their habitats continue to be protected. Ecological studies will provide information, which when released to the public, will increase interest in these rare species.

WILDLIFE MANAGEMENT PROGRAMS

WILDLIFE ADMINISTRATION

The ends toward which governments' efforts have been directed in the administration of Manitoba's wildlife programs are:

1. *To ensure that appropriate use is made of wildlife and that the resource is passed on to future Manitobans in at least as vigorous a state as it was received by our generation.*
2. *To provide a variety of forms and amounts of wildlife use opportunities for the recreational benefit and enjoyment of Manitobans.*
3. *To provide for subsistence and commercial use of the wildlife resource within the constraints of a defined alloction process and the capacity of the resource to withstand such exploitation.*
4. *To promote the use of wildlife for scientific purposes and the educational benefit of Manitobans.*
5. *To alleviate wildlife damage to people and property.*

The Department's ability to achieve the above goals is constrained particularly by constitutional and economic factors. Rights to the wildlife resource, guaranteed in the BNA Act and related Treaties and agreements, necessitate managing without full authority to control the actions of some major users. Similarly, International Treaties respecting migratory birds impact upon provincial management perogatives.

To appreciate the significance of present wildlife legislation, it is necessary to review briefly the evolution of wildlife legislation in Manitoba during the past 100 years. Policy has remained largely unchanged throughout this period but has been greatly refined.

Wildlife legislation in Manitoba was first introduced in 1876 with an Act for the protection of Game. In 1882, the Deputy Minister of Agriculture wrote a lengthy report on wildlife in which he expressed his opposition to market hunting. The sale of venison was prohibited in 1893. The Migratory Bird Convention was signed in 1916, followed by the Government of Canada Migratory Bird Convention Act in 1917 which remains essentially unchanged today. In 1925, the Government of Canada with concurrence of the Province designated several large marshes as Public Shooting Grounds in the interest of hunters. These designations are still in effect. The Natural Resource Transfer Agreement in 1930 led to a new Game and Fisheries Act and the transfer of responsibility for wildlife from the Department of Agriculture to the newly formed Manitoba Department of Mines and Natural Resources. In 1963, The Wildlife Act replaced the Game and Fisheries Act of the 1930's. It was amended in 1970 but continued until the present Wildlife Act (Chapter 73 in the Statutes of Manitoba) was proclaimed in August, 1980.

Although similar to its forerunner, the new Act encompasses several major changes. Some of the most important and interesting changes were:

1. The Minister responsible for wildlife is now required to make annual and five year reports to the Legislature concerning the administration and status of the wildlife resource.
2. The importance of private lands in supplying wildlife habitat and opportunity to use wildlife is recognized, making it an offence to hunt on private land without permission. This was not the case previously.
3. Agricultural crops and livestock are now more clearly protected by making it an offence to hunt or trap in a manner likely to cause them damage.
4. Compensation to farmers for damage to livestock is extended to include veterinarian fees for treatment of wounded livestock.
5. The Minister may now proclaim a species or local wildlife population endangered and prescribe measures for its survival.
6. Predator control provisions are now included in this Act thereby allowing repeal of Manitoba's Predator Control Act.
7. The scheduled listing of Wild Animals under the Act is expanded.
8. Black bear and gray (timber) wolf, previously classified as predators, are now listed as big game animals.
9. A "Small Game" section has been added to the Schedule to which species may be named later.
10. Penalties have been realigned and increased. Fines upon conviction now range from $500 to $3,000 depending upon the offence.

A variety of wildlife policies have been enunciated for the purpose of administering and implementing wildlife legislation and programs in Manitoba. Principle among these are policies for perpetuating and allocating the wildlife resource, namely; *to administer, manage and allocate the wildlife resource so that viable populations are maintained, and numbers are not permitted to decline to levels where recovery is doubtful. Specifically, allocations of the resource have been made, in order of priority, to provide for:*

a) Treaty Indian hunting rights,

b) commercial use of furbearers in preference to recreational use of furbearers,

c) recreational use of game in preference to tourist use.

The Department of Natural Resources was re-organized in January 1980, during which a Wildlife Branch was re-established. Wildlife staff and most wildlife programs are amalgamated in that Branch, which in 1981-82 comprised 73 staff and combined salary and operating budget of $3.6 million. Law enforcement, guide training and hunter safety training are housed in Regional Services Branch; licensing and some aspects of public information pertinent to wildlife management are the responsibility of the Administrative Services Branch.

Clarification and simplification of relevant legislation has been a major initiative of wildlife administration. Although considerable progress has been achieved in amalgamating regulations and striking down outdated laws, this matter will require constant vigilance.

Other Administrative initiatives have been aimed at improving the competence and efficiency of staff and the effectiveness of programs, encouraging greater contribution to wildlife management from private and public agencies, increasing accountability in program management and integrating wildlife management more effectively into the management of related resources. A variety of indicators bear witness to some noteworthy achievements. Notwithstanding these successes, much remains to be done in light of the dynamics of public administration and pace of technological change.

Direct revenue to government from wildlife licences and royalties for 1981-82 was $1.5 million, as compared to an average of $1.3 million over the last five years (Table 4).

Wildlife is unique among renewable natural resources in that it is mobile and often inter-jurisidictional. It is the property of the Crown whereas the habitat which sustains it is often privately owned. Moreover, those reponsible for its maintenance do not have full authority over its use. Its capacity to arouse emotional support is equalled only by its capacity to inflict damage. Thus, wildlife administration necessitates delicate and often protracted negotiations with other shareholders in the resource, its habitat or its use. Wildlife stands alone as requiring a degree of inter-agency, interjurisdictional and public liaison not required in the administration of other natural resources.

TABLE 4. Direct Revenue to Manitoba from Wildlife License Sales and Royalties

Year	Revenue Generated
1977-78	$1,063,337
1978-79	$1,079,430
1979-80	$1,121,496
1980-81	$1,668,249
1981-82	$1,495,042

WILDLIFE LAW ENFORCEMENT

The objective of the wildlife enforcement program is to ensure that wildlife resource users comply with the provisions of The Wildlife Act. This program is designed to be sensitive to those who are being regulated but effective in maintaining compliance with wildlife laws.

In the pursuit of these objectives, the Department has,

1) ensured procedures which are based on the concerns and needs of the public who use the wildlife resource,
2) ensured that the management of enforcement activities strive to,
    a) establish goals and target compliance rates (percentage of people complying with the rules),
    b) determine actual compliance and effort,
    c) determine efficiency of the various enforcement methods,
    d) assess cost effectiveness of alternative enforcement methods and
    e) develop new enforcement methods to solve problems.

The role of law enforcement in Manitoba's wildlife management has a long history. The first protection for various species of game was enacted in 1876. This early Game Act was designed only to give protection to game birds and animals raising their young. Today, 148 officers working out of 49 resource and 17 park districts enforce 27 pieces of provincial and federal legislation. The three pieces of legislation that deal specifically with wildlife in the Province are:

1) The Wildlife Act and Regulations (Manitoba),
2) Migratory Birds Convention Act (Canada) and
3) Game Export Act (Canada).

The Wildlife Act currently in effect was proclaimed August 29, 1980. Four significant changes in this legislation which reflect current public attitudes toward wildlife law enforcement were: (1) provisions specifically afecting the hunting of wild animals for food by Treaty Indians were removed: (2) a number of additional species were designated as wild animals under the Act; (3) penalities were increased to reflect the deterrent considered necessary to improve compliance rates; and (4) permission to hunt on private land was made mandatory. This removed the onus from the landowner who no longer has to take civil action against trespassing hunters.

Some of the major thrusts in enforcement strategies that have occurred in the last five years are as follows:

1) development and implementation of a program incorporating a newly designed computerized records system,
2) increased use of aircraft in conjunction with ground units for surveillance,
3) increased use of forensic laboratories,
4) increased liaison with other enforcement agencies,
5) increased emphasis on staff training, particularly in resource law enforcement techniques,
6) improved communications between officers and local user groups, media and the public at large and,
7) re-scheduled manpower to cover peak periods such as the opening days of hunting seasons and long weekends.

The three broad categories of wildlife resource users with which Natural Resource Officers normally deal are: (1) licenced hunters, (2) Treaty Indians hunting under Treaty rights and (3) commercial users of wildlife such as trappers, taxidermists, fur dealers, fur ranchers and game farm operators. During 1981-82, officers made field contact with about 10% of the Province's 84,000 resident licenced hunters. Although less information is available, it is believed that a similar percentage of Treaty Indians are contacted during their hunting activities.

A comparison of hunting prosecutions for the past 10 years is provided in Table 5. Reflected in these statistics are improved enforcement methods applied in recent years. Compliance checks indicate that approximately 95% of all licenced hunters obey the law.

Table 5. Comparison of Hunting Prosecutions in Manitoba from 1972 to 1981

Fiscal Year	Hunting Prosecutions
1972-73	496
1973-74	453
1974-75	373
1975-76	492
1976-77	463
1977-78	698
1978-79	804
1979-80	782
1980-81	438
1981-82	955

In 1981-82 Natural Resource Officers spent 15.3% of their time, amounting to 5,097 man-days, on wildlife law enforcement activities. This a decrease from 20% of their time devoted to wildlife enforcement five years ago and is largely due to expanded responsibilities. This resulted in 955 prosecutions, 274 warnings and reponses to 4,217 occurrences reported by the public and cooperating agencies. The five most common offences based on prosecutions during the 1981-82 fiscal year were; night hunting (226), loaded firearm in vehicle (144), hunting out of season (89), possession of illegally taken wildlife (69) and hunting on private land without permission (52).

Compared to the previous four years, the most significant change is in the frequency of night hunting offences. Night hunting has moved from second place in the previous four years to being the most common in 1981-82, an increase of 377% over the previous four year average. Much of this increase is attributed to legal clarification of Treaty Indian hunting rights and improved enforcement techniques. In 1981-82 Treaty Indian prosecutions for night hunting represented 70% or 158 offences out of a provincial total of 226. In 1980-81 night hunting offences by Treaty Indians represented 59% or 27 offences out of a provincial total of 46.

It is anticipated that the most significant problems that will face enforcement staff and other wildlife managers in the next five years are: (1) night hunting, (2) illegal sale of wild meat and (3) illegal hunting on private land. To adequately cope with these problems increases in staff and funds as well as continued improvement in techniques will be required.

RECREATIONAL HUNTING

A major responsibility of the Department is the planning and management of the recreational hunting program. Approximately 84,000 Manitobans participate annually in recreational hunting throughout the Province. Table 6 indicates the number of participants in each type of hunting, the number of days of recreation and game harvest estimates. Many Manitobans also participate in small game hunting for which no licence is required. The wildlife resource annually provides over 535,000 days of recreation, 812,000 game birds and 28,900 big game animals for hunters.

Table 6. Number (No.) of Hunters, Estimated Man-days of Recreation and Estimated [a/] Game Harvest in 1981-82.

Hunter Type	No. of Hunters	No. of Man-days Recreation	No. of Animals Harvested
Game Bird	55,778	278,890	812,000
Wild Turkey	304	450	66
Deer	49,300	169,648	24,999
Moose	9,512	45,723	1,965
Elk	2,833	18,711	631
Woodland Caribou	215	1,053	60
Black Bear	3,997	19,585	1,200
Wolf	+25	+100	+50
TOTAL	121,964*	534,160	840,971

*Many of the 84,000 Manitobans who particpate in recreational hunting hunt more than one species, therefore total participants are 121,964.

The setting of annual hunting seasons is a complex administrative task. Game populations, hunter demand, concerns of hunters, landowners and non-hunters are assessed. Past hunting seasons and success rates are also reviewed. Recommendations which strive to be biologically sound, socially acceptable and administratively feasible are developed by the Department and forwarded to the Minister for approval.

During the past decade, hunter numbers have increased by 2% annually. Demand for black bear hunting has increased from 600 to 4,000 hunters.

The annual hunting program has largely met demands for upland game birds, waterfowl, deer, woodland caribou, black bears and wolves. In fact, there has been surplus hunting opportunity for bears and wolves. Demand for waterfowl, deer and woodland caribou is close to supply. Controls such as shortened seasons, reduced bag limits and draws for some species have been necessary to maintain harvests in line with available stocks of game; further restrictions will be necessary unless these populations show significant increases.

Elk and moose are currently in short supply relative to demand. To prevent over-use of these species, restrictions such as limited-licence draws and "bulls only" seasons have been implemented. In addition elk licences have been issued on a two-licence, one tag system to provide more hunting opportunity without increasing the harvest. In 1981, there were 8,506 potential elk hunters but only 2,252 licences and 1,126 tags available. The current licencing system for elk hunting is aimed at; (1) allocating the supply in an equitable manner,

(2) providing special landowner opportunities to those individuals who maintain elk habitat and (3) providing special archery seasons which have minimal impact on the resource.

Manitobans enjoyed abundant moose hunting opportunity up to the early 1970's. Since then, demand has exceeded supply. Moose numbers have declined due to habitat maturity, wolf and black bear predation, intense hunting pressure by Treaty Indians and a series of severe winters. As a result, moose hunting seasons in some areas have been shortened or cancelled, bag limits reduced to "bulls only" and licence numbers restricted.

The growing use of mechanized equipment in hunting is of concern. During the late 1960's and early 1970's the snowmobile became a popular vehicle for recreation, including hunting. It enabled the hunters to get into remote habitats where animals were more abundant and to retrieve game from the woods. This resulted in increased harvests of game, particularly moose, competition with the traditional hunter on foot and illegal use of vehicles for hunting. To reduce these negative impacts a system of designated vehicle routes was introduced to restrict vehicles to specific roads and trails except to retrieve harvested game. Over 2,800 miles of these routes in 10 Game Hunting Areas are used by over 4,600 hunters and other outdoor recreationists. Approximately 1,000 moose are harvested annually in designated route areas. The use of designated routes has contributed to the distribution of big game harvests, quality hunting and a reduction in the illegal use of vehicles for hunting. Additional designated routes are required and in some areas legislation will be amended to prohibit the use of all-terrain vehicles and four-wheeled drive vehicles as well as snowmobiles.

Wildlife refuges are areas in which hunting or trapping of various species of wildlife is prohibited and have been maintained in southern Manitoba for many years. Twenty-six refuges, totalling some 175,430 ha. of Crown and private land, provide protection to waterfowl, big game, furbearers and upland game birds. Conversely, several major wetland areas of Crown land (about 51,360 ha.) were designated by the Federal government as Public Shooting Grounds as early as 1925. These areas, now under provincial control, are to be maintained as places where the public can hunt waterfowl. Although no new refuges or public shooting grounds have been developed during the last decade, the Department intends to examine existing refuges and detemine if more are required.

The Department receives numerous letters and telephone calls requesting information or commenting on wildlife programs. Most responses are related to information on hunting seasons or status of wildlife populations. Public reaction has centered upon poaching, elk hunting licence draws, wildlife damage, and hunting by Treaty Indians. On the other hand, the public has supported managed hunting programs, recognition of landowners, hunting on leased Crown land and primitive weapon seasons.

Each July, the Department publishes the annual hunting brochure for distribution to resident and non-resident hunters. It has been an effective medium for conveying information about hunting seasons and is recognized throughout the continent as one of the most thorough, accurate and easily understood brochures of its kind.

NON-RECREATIONAL WILDLIFE USE

Reptile and Amphibian Harvest

Each year garter snakes are harvested in Manitoba for preparation of study specimens by biological supply firms. Snake collecting occurs primarily in the Interlake and Westlake during the first week of September. In 1981, 26 "picker" licences were issued (14 individual and 12 family). Approximately 50 people harvested 36,000 garter snakes valued at $12,500. The resource can sustain a greater harvest but it is affected in some years by bad weather. Caution has to be exercised to assure that the more accessible pits are not overharvested. Leopard frogs are also harvested under permit but populations in recent years have been so depressed that no frogs were harvested, in spite of commercial demand.

Field Trial Permits and Dog Training Licences

Field trial permits are issued to dog handlers who use live, captive wildlife to train their hunting dogs in competitions. Most permits issued are to clubs near Winnipeg or Brandon. In 1981-82, five permits were issued to clubs to use captive pheasants. One permit was issued to allow dogs to pursue but not kill wild raccoons. Licences were issued to eight dog trainers who come to the Westlake and Southwest areas to train large numbers of dogs on live, wild sharptailed grouse. Grouse are not killed or harmed in this training method.

Captive Wildlife Permits

Permits to keep wildlife in captivity are issued to individuals who wish to operate game farms. All game farms currently under permit are in southern Manitoba. In 1981, 108 permits were issued to operators holding species such as deer, elk, woodland caribou, black bear, wolves, eagles, pheasants and turkeys. Game farms provide wildlife viewing opportunities for several thousand people annually.

Permits to Serve Wild Meat

To ensure that wildlife is not taken for the commercial food industry, it is illegal to have wild meat in a restaurant or establishment where food is served for profit. Certain organizations or individuals, however, wish to have banquets which include wild game on the menu. The Department issues permits to facilitate this use, nine of which were issued in 1981.

Scientific Collecting Permits

In order for wildlife researchers to carry out specific investigations on a particular species, a sample of animals is sometimes required. Scientific collecting permits are issued annually to those researchers requiring study specimens upon justifying to the Department the need for such collection. In 1981, 17 permits were issued to researchers whose studies met Departmental criteria.

Northern Flood Agreement Committee

The Northern Flood Committee Agreement was signed by the Department of Indian and Northern Affairs, Canada, the Government of Manitoba, Manitoba Hydro and the Northern Flood Committee on December 16, 1977.

Article 15 of the Agreement provides for compensation to the residents of the Indian Reserves within five Registered Trap Line (RTL) zones in Northern Manitoba for loss of wildlife (including fish) and the opportunity to use the resource due to hydro-electric developments.

The agreement covers a "Resource Area" composed of the RTL's of South Indian Lake, Split Lake, Cross Lake, Nelson House and Norway House. The Resource Area encompasses 153,000 square km. (59,000 square mi.). At the time of referendum (March 15, 1978) to ratify the agreement there were 3,681 eligible voters, in five Treaty Indian Bands.

Article 15 provides, in part, that the Government of Manitoba will:

a) Grant to the residents of the Reserves first priority to all wildlife within the Resource Area.

b) Establish a Wildlife Advisory and Planning Board to advise the government on any wildlife matters.

c) Provide training for residents to become qualified for employment as Conservation Officers.

In response to these provisions, Manitoba has continued to grant priority to reserve residents to all the wildlife resources within the designated area.

A Wildlife Advisory and Planning Board was established in 1979 with representation from the Indian Reserves of Nelson House, Cross Lake, Norway House, York Landing, Split Lake and representatives from Norman Regional Development Corporation, Thompson Wildlife Association, Manitoba Metis Federation and Manitoba Wildlife Branch (advisory only). Since its formation the Board has met eleven times prior to March, 1982 and discussions included the following issues;

- Wildlife and fish legislation and licencing relating to Treaty Indians.
- Training and hiring of Conservation Officers for work on reserves.
- The Registered Trapline Program and all related trapper problems.
- The membership and functions of the Wildlife Board and its relationship to Hydro programs.
- Resource Areas and Wildlife policy.
- Government land use policy in the North.
- Hold Areas, their intent, administration and control.
- Mercury levels in fish, disease in wildlife.
- Terms of Reference of Review Committee.

WILD FUR MANAGEMENT

The Wild Fur Program was implemented in 1975 as a cost-shared program between Canada and Manitoba. It was designed to provide, through responsive and efficient management of the wild fur resource, optimum fur harvest and returns to trappers. The program terminated on March 31, 1980. Independent evaluation indicated the need for ongoing initiatives to maintain progress realized and to resolve new issues. To ensure that trapper services were not neglected while a new program was being developed, interim agreements with the Federal Government have been maintained.

Major components are:

1) program supervision to provide a management structure for planning, implementing and monitoring the policies and programs required to achieve program objectives,
2) field management to improve trapper participation in developing wild fur resources, to expand production through more effective harvesting and to ensure the maintenance of furbearer populations,
3) humane trapping to develop and implement the most humane possible trapping systems to improve the social acceptance of trapping as a vocation by increasing public awareness of the ecological, economic and social benefits derived from harvesting wild fur resources,

4) trapper education to upgrade trappers' skills in trapline management, fur harvesting and marketing, humane trapping techniques and maintenance of equipment,

5) trapline development to increase fur harvests through the amelioration of poor living accommodations, inadequate access and social isolation,

6) trapline officers employed in the community to resolve local trapping issues, assist trappers to improve production and establish departmental contacts at the local level and

7) to assist the Manitoba Registered Trappers Association to defray administrative and operating costs incurred in its work with trappers and the Department.

The program's primary application is in Registered Trapline (RTL) and Special Trapping Areas which include some 520,000 square km. (200,000 square mi.), and where 2,500 of 3,500 trappers are Treaty Indians (Fig. 14). Services are also extended to the 132,600 square km. (51,000 square mi.) Open Area, where Treaty Indians comprise 10% of the 13,500 trappers.

Between 1975 and 1980, a total of $2.9 million was invested in rejuvenating the fur industry. The average annual value of wild fur harvested during the program was $6.4 million, up considerably from a pre-program figure of $2.6 million. Pelt production rose by 50%. A combination of improved fur prices and increased harvest resulted in an all time record production of nearly $10.0 million in 1979-80. The average income of RTL trappers increased from $724 to $1,850; an

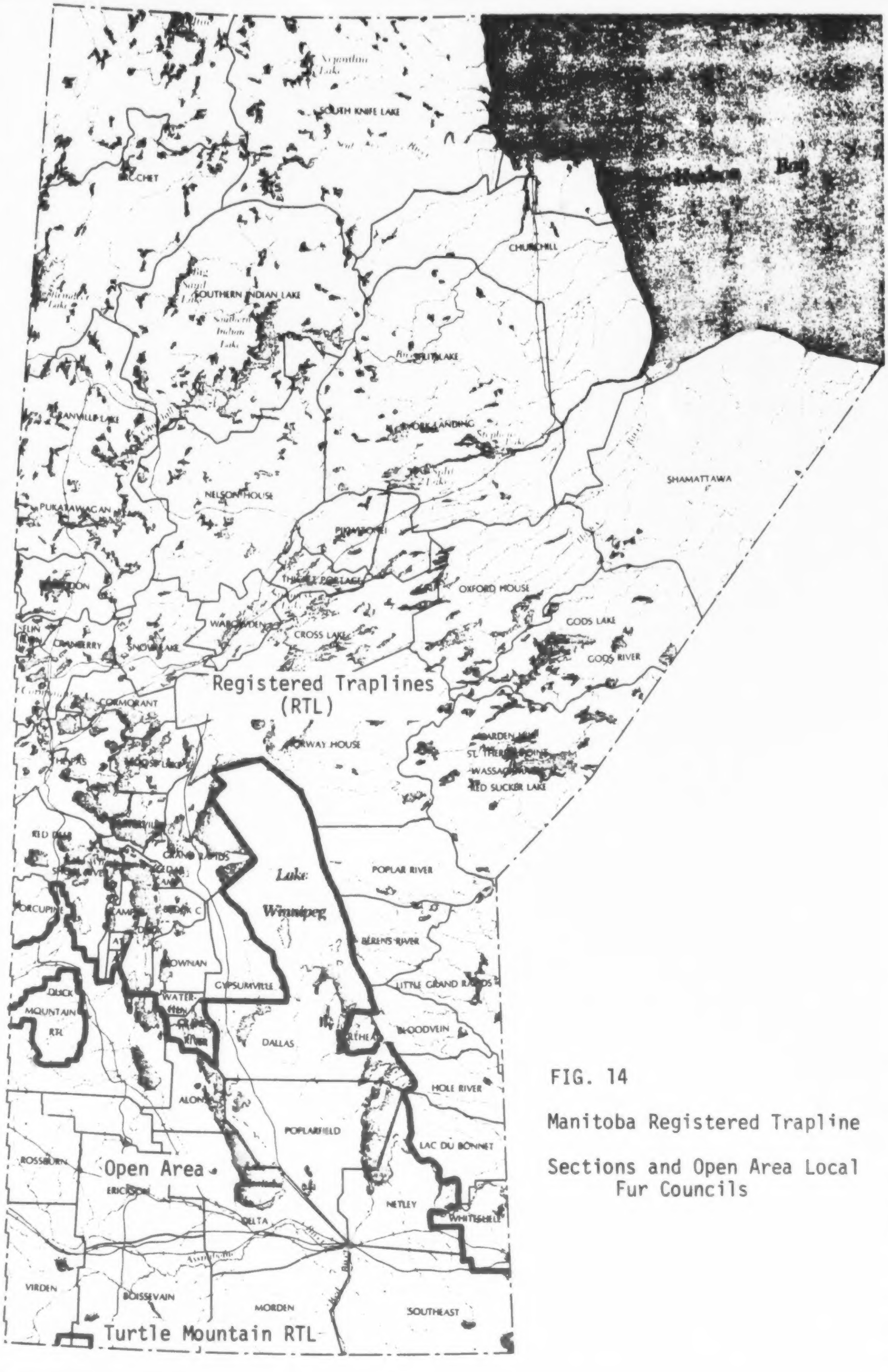

Registered Traplines (RTL)
Open Area
Turtle Mountain RTL
Duck Mountain RTL
Lake Winnipeg
Hudson Bay
SOUTH KNIFE LAKE
CHURCHILL
SOUTHERN INDIAN LAKE
SPLIT LAKE
GRANVILLE LAKE
YORK LANDING
NELSON HOUSE
SHAMATTAWA
PUKATAWAGAN
PIKWITONEI
THICKET PORTAGE
OXFORD HOUSE
WABOWDEN
CROSS LAKE
GODS LAKE
GODS RIVER
CRANBERRY
SNOW LAKE
CORMORANT
NORWAY HOUSE
ST. THERESA POINT
WASSAGAMACK
RED SUCKER LAKE
RED DEER
GRAND RAPIDS
POPLAR RIVER
PORCUPINE
BERENS RIVER
BOWNAN
GYPSUMVILLE
LITTLE GRAND RAPIDS
BLOODVEIN
DALLAS
HOLE RIVER
ALONSA
POPLARFIELD
LAC DU BONNET
ROSSBURN
ERICKSON
NETLEY
WHITESHELL
DELTA
VIRDEN
BOISSEVAIN
MORDEN
SOUTHEAST

FIG. 14

Manitoba Registered Trapline

Sections and Open Area Local Fur Councils advance of lesser magnitude occurred in the Open Area. Prior to the program, RTL trappers produced approximately 33% of the Provincial Fur crop; that figure now approximates 60%. Trapping income realized by Treaty Indian trappers was in excess of $3.0 million per year (Figs. 15 and 16).

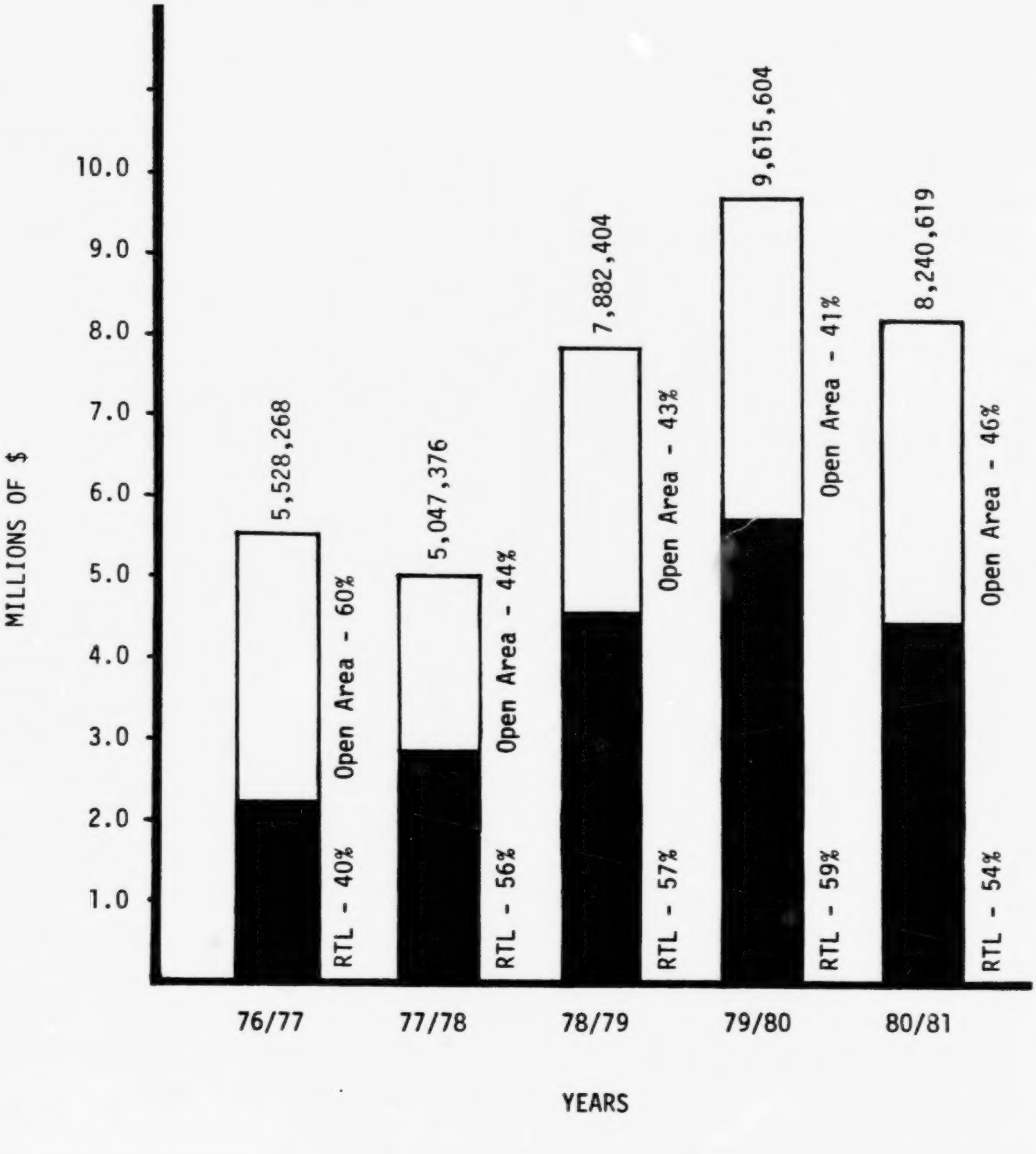
The Fur Program provided an improved administrative service to manage the resource and work with trappers. In addition to six permanent staff, 14 casual staff (Trapline Officers) are hired during the trapping season. Twelve of the Trapline Officers are of native ancestry and their ability to communicate with trappers in their own language has gained the Department much credibility at the local level. Fur expenditures are now approximately $500,000 annually, of which 85% results in direct and indirect benefits for trappers and 15% is used for program administration.

Trapping seasons are designed to ensure sustained harvests. A trapping brochure, outlining seasons and other information pertinent to trapping, is published annually.

In 1980 a complete wild fur policy and administrative review system was designed to identify anomalies, facilitate effective response to trappers' needs and promote optimum fur harvests. This process is being undertaken in consultation with Local Fur Councils in both the RTL and Open Area.

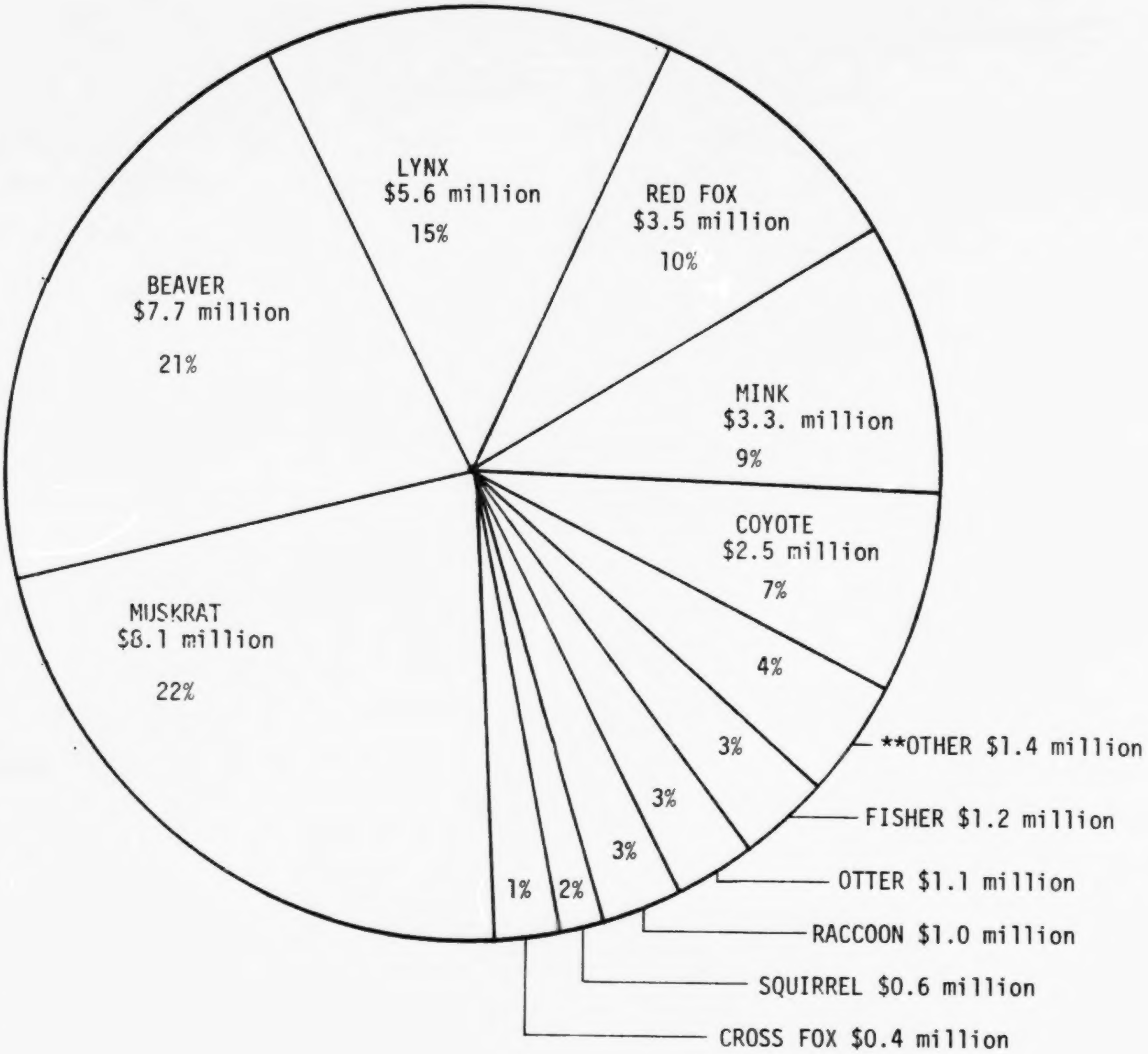
Many benefits accrued from the Fur Program. There were, however, some components which did not meet objectives and were terminated. These include trapper loans, cancelled because of excessive arrears and fur marketing assistance, revised in favour of more efficient approaches

FIG. 15 TRAPPER INCOME, RTL and OPEN AREA, 1976/77 -1980/81.*



* BASED ON FUR YEAR, OCT.1 - SEPT.30

Fig. 16 DISTRIBUTION OF TRAPPER INCOME BY SPECIES, 1976/77-1980/81*



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* BASED ON FUR YEAR, OCT. 1 - SEPT. 30

** BADGER, BEAR, ERMINE, BLUE FOX, SILVER FOX, WHITE FOX, MARTEN, TIMBER WOLF, WOLVERINE.

to increasing the trappers' share of full market value.

Many issues inhibiting fur production were successfully addressed between 1975 and 1980. New problems, however, have emerged. These must be resolved to maintain a viable wild fur industry. The most critical single issue is increasing pressure from anti- trapping groups. Anti-fur propaganda has already harmed our European markets significantly and new campaigns are building. The International Fur Trade Federation predicts a *complete demise* of the wild fur industry within 10 years if a counter-initiative is not under-taken soon. Thousands of Manitobans, many of whom are native people, are now afforded the dignity of productive work in harvesting wild fur. They will be forced into total dependance upon welfare-based alternatives if action is not taken.

To meet this urgency, the Department must continue to deliver effective humane trapping and education programs. These will include the development and promotion of humane trapping techniques and public education programs to increase awareness of the benefits of the wild fur industry. Manitoba maintains a leading role in developing the Fur Institute of Canada. The Institute will initiate a joint effort by government and the private sector to maintain trapping as a livelihood, through the coordination of national humane trap development and public education.

Special ARDA

The Federal-Provincial Agriculture Rehabilitation and Development Act (ARDA) of 1972 included a Trapping Component which was to improve incomes of eligible trappers. All components were administered by the provincial Department of Northern Affairs until 1978 when responsibility for delivery and monitoring of the Trapping Component was assigned, under agreement, to staff of the Department of Natural Resources. Financial administration remained with Northern Affairs. The delivery of trapper-oriented programs was unified to provide more efficient service and minimize administration expenses resulting in greater benefits for trappers. The ARDA Trapping Component was primarily directed at people of Indian ancestry. Most assistance provided has gone into the Registered Trapline Area.

Over the past 10 years, ARDA has provided $3.5 million of assistance to 3,368 Manitoba trappers. Of this total, 1,976 were Treaty Indian, 1,132 were Metis and 260 others of non-Indian ancestry. Although no quantative data are available to verify program benefits, there is general concensus that first grants to trappers were beneficial. However, with the implementation of the Wild Fur Development Program and the Manitoba Hydro Trappers Compensation Program three years after ARDA, benefits directly related to equipment assistance grants cannot be segregated from those created by other programs. Recent reviews of equipment assistance grants indicate that nearly all eligible trappers have received assistance from ARDA. Future funding should be directed toward issues inhibiting fur production such as high operating costs and lack of trapline access.

Manitoba Hydro Trapper Compensation Program

Manitoba Hydro's Trapper Compensation Program was implemented in 1975 to assist trappers who had their fur production significantly affected by hydro-electric developments in northern Manitoba. The original program operated from 1975 to 1980 and has been extended until an assessment of the program is completed.

Program benefits are directed toward affected trappers in five Registered Trapline areas; Cross Lake, Nelson House, York Landing, Split Lake and Norway House. In 1977, some affected trappers in the Thicket Portage and Pikwitonei sections were brought into the program. During the program, Hydro has spent approximately $2.0 million in compensation benefits to 301 trappers.

The Department of Natural Resources is responsible for providing fur production records upon which compensation payments are based. Staff advise the Northern Flood Committee's Wildlife Advisory and Planning Board, Manitoba Hydro and the Manitoba Registered Trappers Association in the development and delivery of trapping programs.

COMMUNITY WILDLIFE MANAGEMENT

The Community Wildlife Management program was conducted from 1976 to 1981 in northern Manitoba. It was cost-shared between Canada and Manitoba under the Northlands Agreement. Its objective was to identify and develop opportunities for consumptive and non-consumptive use of wildlife in Northern Manitoba, in consultation with the local people. Tasks ranged from interjurisdictional negotiations (Canada, Saskatchewan and the Northwest Territories) to work in specific communities (e.g. Skownan, Churchill, etc.).

In the initial years, this program was known as the Wildlife Development Component. After the 1977-78 fiscal year, the following specific objectives were pursued.

1) The Barren-ground Caribou Management Component was designed to develop and implement a management strategy to restore depleted herds of barren-ground caribou.
2) The Woodland Caribou Management Component was to manage the woodland caribou resource of the Hudson Bay coastal area for the benefit of local residents.
3) The Polar Bear Management Component was to develop an effective polar bear damage control program and to undertake management oriented investigations.
4) The Wildlife Management Area Component was to develop management strategies for the Cape Churchill and Cape Tatnum Wildlife Management Areas.
5) The Guide Training Component was designed to upgrade guiding skills

and improve job opportunities of northern residents.

6) The Wildlife Resource Development Component was to establish and maintain the Chruchill Resource Centre for resource development and extension services.

The program cost approximately $1.0 million and involved, on the average, four staff persons per year. The impact and assessment of each segment of this program are as follows:

1) Barren-ground Caribou Management. Frequent discussions were held between Wildlife Branch staff and people from the involved communities to deal with the problems associated with caribou management. Community cooperation in the management of barren-ground caribou is imperative, as the people of Tadoule Lake and Lac Brochet are heavily dependent on these animals. Some residents of Brochet also depend on the herds as a food source. Three community representatives were on staff and participated in all aspects of this work. Surveys were flown to estimate caribou numbers and distribution and harvest data were collected each year. Assistance was provided to the bi-monthly newspaper "Caribou News". Meetings were held involving the Department of Indian Affairs, Keewatin Tribal Council, Department of Northern Sasktchewan, the Canadian Wildlife Service and the Northwest Territorial Government. Habitat mapping of 90,650 square km. (35,000 square mi.) of caribou wintering range in Manitoba was completed in 1981. An interjurisdictional management plan for the Beverly and Kaminuriak caribou herds, completed in 1981, recommended that a Caribou Management Board be established. Over the five years of its operation, this component had significant impact on the attitudes of

northern residents. It dramatically increased the communities' involvement in wildlife management and increased their awareness of similar problems and issues in other communities on the caribou range. Valuable biological information on the caribou, excellent habitat maps and an informed and involved user group resulted.

2) Woodland Caribou Management. Surveys of the Cape Churchill herd were conducted annually with local residents participating so that they might better understand the status of the herd. This work has resulted in sound information on herd status and distribution. In 1981, work was started on the Cape Tatnum herd but information is as yet incomplete. The caribou of these two herds are used by the nearly 2,500 people living in Churchill, Gillam and Shamattawa.

3) Polar Bear Management. The two parts to this component are polar bear damage control and polar bear research. The polar bear depredation program is carried out each fall. It is designed to protect the lives and property of Churchill residents from migrating bears and has been remarkably successful. It also attempts to protect the bears from people. An intense public relations campaign is carried on by the Department in Churchill each fall. Brochures, posters, signs, public meetings and radio announcements are used to alert the public to potential dangers of polar bear encounters. A 24 hour "hot line" and response team is maintained in Churchill during the migration season. A polar bear holding facility is in the final stages of construction east of Churchill in order to reduce the number of bears killed and relocation costs. Research is being

conducted in cooperation with the Canadian Wildlife Service to estimate the polar bear population and its productivity and to determine the fidelity of females to the denning area.

4) Wildlife Management Areas. A draft management plan for the Cape Churchill Wildlife Management Area was completed with the cooperation of local residents. The plan calls for management to be centered on polar bears, caribou and geese. A zoning plan has been developed to regulate public and industrial use of the area and to protect habitat. Work has been started on a plan for the Cape Tatnum Wildlife Management Area.

5) Guide Training. A series of training courses conducted in various communities to upgrade guiding skills has resulted in qualified guides being available for the Manitoba tourist industry. This program aided in training many of the 617 guides that are licenced in Manitoba.

6) Wildlife Resource Development. This program assisted and encouraged individuals and groups in the development of wildlife resource use. A public education and extension program was operated from the, Churchill Resource Centre. Staff produced 35 mm slide shows, posters radio programs, graphic displays and brochures on resource development and wildlife management. Assistance was provided to various federal and provincial agencies involved in research and tourism. Staff were actively involved in resource planning in northern communities and they were also involved in an advisory capacity in the Hydro Trapper Compensation Program and the Northern Flood Agreement.

WILDLIFE HABITAT MANAGEMENT

In its broadest context, habitat can be defined as the elements required by an animal to live - food, water and shelter. The requirements of each species vary and (other factors being equal) the relative abundance of a species is largely dependent on the amount of habitat available.

In Manitoba there are many competing uses for the land base which provides wildlife habitat. Agricultural expansion, urban sprawl, industrial development, hydro-electric development, forest harvesting and forest fires exert major influences on wildlife habitat and wildlife populations. In many areas forest maturation is influencing the ability of some wildlife species to increase or maintain healthy populations. In Agro-Manitoba a significant amount of wildlife habitat is lost annually. An estimated 51,800 ha. of upland cover and 12,000 ha. of wetlands are bulldozed and drained for conversion to cropland each year. Agricultural practices such as burning, cropping to the edge of marshes and intensive livestock grazing further reduce the capability of thousands of hectares of habitat to support wildlife.

In southern Manitoba, where the greatest diversity and density of wildlife species occurs, much of the land base and thus, habitat, is privately owned. Private land is important because it produces almost two-thirds of Manitoba's deer and ducks. Habitats of many species including rare or endangered species such as the burrowing owl and Harris sparrow are found on private land. Habitat loss at current rates will result in a 30% reduction in the deer herd and a serious decrease in waterfowl and upland game birds and a decline in furbearer populations by 1990. Waterfowl production has declined by 30% over the last three decades largely due to wetland and upland nesting habitat losses to agricultural expansion.

A major problem in arresting the loss of habitat on private land is that Manitoba landowners receive little or no economic incentive to maintain wildlife habitat or wildlife. In fact, legislation such as the Canadian Wheat Board Act and tax benefits for improving land encourages landowners to clear woodlands and drain marshes. Department staff have developed proposals for reimbursing landowners for their role as custodians of the public's wildlife resource. One of the main stumbling blocks in implementing these proposals is the large amount of money required.

The purpose of the habitat management program is to ensure that sufficient wildlife habitat remains to produce and sustain all species of wildlife required by Manitobans.

Land Use Planning and Allocation For Wildlife

Habitat preservation and management on Crown lands is accomplished administratively through Wildlife Branch representation on an inter-departmental Crown Land Classification Committee (CLCC). Established in 1975 to resolve competing uses on Crown land with major emphasis on agriculture - wildlife - forestry conflicts, its initial function was to develop land use guidelines for nine Block Planning

Committee (BPC) areas within Agro-Manitoba. In 1978, the CLCC was directed to provide the Provincial Land Use Committee (PLUC) of Cabinet with recommendations for the exchange of Crown lands, primarily those associated with the Local Government District Land Exchange Program. Finally, the CLCC was responsible for Provincial Crown land plans for Planning Districts.

Requests for sale under the Agricultural Crown Land Sales program are reviewed with the aim of retaining those parcels having high wildlife values. So far, virtually all such parcels of Crown land have been retained in public ownership, however, they represent less than 3% of all land sales reviewed by the CLCC.

Major accomplishments of the CLCC include:

1) A uniform mechanism for the review and delivery of Crown land use policy and programs.
2) Regional planning structures (BPC) to assist in planning uses of Crown land.
3) Crown land plans for individual Rural Municipalities and Local Government Districts. Five Crown land plans were completed and four others were initiated.
4) The review of 1,333 parcels of Crown land requested for sale under the Agricultural Crown Land Sales program. The Provincial Land Use Committee approved 1,000 parcels for sale and disapproved 333 parcels.
5) The review of 670 proposed land exchanges for the Local Government District Land Exchange Program.

In 1979 the Resource Allocation and Planning Branch of the Department of Natural Resources was established to ensure that Manitoba's natural resources are allocated in a manner consistent with government policy. Since that time Wildlife Branch staff have provided 62 background reports for 32 Planning Districts. The Branch has also provided comments and recommendations for at least 15 major land use issues such as the Basket Lake and Red Deer Agricultural Studies and some 20 environment impact assessments. Seventy-seven applications for commercial tourism licences have been reviewed with recommendations passed on to the Resource Allocation and Planning Branch.

Wildlife Land Designations

1) Wildlife Management Areas (WMAs)

W.M.A.s are parcels of Crown land designated under The Wildlife Act for the management and conservation of wildlife. Specific objectives are: (a) to enhance quality of life for all Manitobans by providing a diversity of wildlife-related outdoor recreational opportunity, (b) to maintain present ecological diversity and promote restoration and (c) to provide economic benefits to Manitobans through use of wildlife in WMAs.

To date, 48 WMAs have been established occupying a total area of 29,407 square km. (11,354 square mi.). Only two W.M.A.s, St. Malo (1.7 square km.) and Cape Churchill (18,777 square km.) have been designated in the last five years. Nine WMAs in the northern part of the province make up 95% of all lands in W.M.A.s. The remaining 39 WMAs (1616 square km. (624 square mi.)) are located in Agro-Manitoba. WMAs are comprised of a variety of terrain and vegetative types; for example, Oak Hammock Marsh, Tom Lamb and Saskeram are three large WMAs that represent major marsh complexes. Cape Churchill and Cape Tatnum along the coast of Hudson Bay represent the subarctic coastal plain. The Lauder Sandhills WMA is a dune area whereas WMAs such as Pembina Valley are steep river valley habitats. Each has unique features which, collectively, provide ecological diversity.

Public use of WMAs is governed by legislation under The Wildlife Act based on past practice,location, ecological sensitivity of the area and status of local wildlife populations. Regulations reflect concern for wildlife productivity and for the original purpose for which the area was set aside. Common public uses include hunting, trapping, nature interpretation, environmental education, scientific research, photography, cross country skiing and hiking. For example, the Brandon Hills WMA was the site for the cross country skiing competition during the 1979 Canada Winter Games. The Canadian Orienteering Championships recently hosted in Manitoba occurred in the Lauder Sandhills WMA. These uses are permitted in a manner that will encourage ecological awareness and an understanding of biological principles. The degree of actual use varies considerably. Some WMAs are less accessible or may be located in less densely populated regions of the Province. Others, near large urban centres, experience very heavy use. For example, 30,000 people visited Oak Hammock Marsh WMA in 1981.

Commercial uses such as haying, grazing, beekeeping, mineral extraction, timber harvesting and trapping are allowed provided they complement habitat management and public use. Agricultural benefits alone from use of WMAs are in excess of $1.0 million annually. Forage produced on WMAs contributed significantly to the provincial emergency drought program of 1980.

2) L.G.D. Land Transfers

In 1964, 10 Local Government Districts (LGDs) delegated administrative authority for their lands to the Crown. Since that date, 303 parcels of LGD land (21,088 ha.) have been incorporated into 13 Wildlife Management Areas in four of the LGDs. A breakdown of these lands is as follows:

Local Government District	Land	Wildlife Management Areas
Alonsa	18 parcels (1,362 ha.)	McCreary
Armstrong	195 parcels (14,065 ha.)	Inwood, Sandridge, Clematis, Narcisse, Rembrandt, Sharpwood
Fisher	27 parcels (1,769 ha.)	Broad Valley, Lee Lake, Little Birch, Mantagao, Sleeve Lake
Grahamdale	63 parcels (3,892 ha.)	Little Birch, Sleeve lake, Mantagao

On June 8, 1977, the Provincial Land Use Committee at the request of the LGDs, approved the transfer of all LGD lands back to the Districts. In this process, LGDs are to be compensated for any of their lands that were not to be returned. Compensation was to be by trading equal valued Crown land for the LGD land. This program is continuing.

Wildlife Habitat Maintenance and Development

1) Habitat Inventory and Evaluation

Urban, industrial and agricultural expansion, annually destroy thousands of ha. of wildlife habitat in Manitoba and wildlife managers are constantly attempting to mitigate these losses. To do this, managers must know the rate, type and location of habitat loss and most importantly, what habitat remains. To acquire this information province-wide would be a formidable task requiring enormous funds and staff time. Hence, habitat inventories have been localized and based on specific needs. Over the long-term, this information will be amalgamated into a comprehensive habitat data storage and retrieval system.

a) Habitat Mapping - Barren-Ground Caribou Winter Range

This project was designed to produce habitat maps of 90,650 square km. in northern Manitoba to aid in assessing the status of the barren-ground caribou winter range. Funding was cost-shared under the Community Wildlife Management Program of the Canada-Manitoba Northlands Agreement. The project area, north of 58 degrees latitude and west of 96 degrees longitude in sub-Arctic Manitoba, is part of a traditional wintering area for the Kaminuriak and Beverly barren-ground caribou herds. In recent years, there has been a critical decline in these herds and a change in their traditional migration patterns. Because of the remoteness of the area, the only reasonable option for habitat mapping was to use photographic information from earth satellites. The work was completed in 1981 yielding six 1:250,000 scale habitat maps and a covering report. The maps indentify fifteen vegetation cover types and are used to determine the quantity and quality of caribou winter range in Manitoba. This project is regarded as a "bench-mark" in the state of the art of wildlife habitat inventory. It is proving to be invaluable in barren-ground caribou management.

b) Deer Habitat Inventory Project

This project was designed to determine the rate of tree and shrub loss over the provincial deer range (approximately 180,000 square km.). The inventory is based upon computer analysis of photo images and other information from satellites to provide a rapid and economical approach to measuring habitat loss. A pilot project to develop methodology began in May, 1981 by the Manitoba Remote Sensing Centre under contract to the Wildlife Branch. The habitat inventory is scheduled to become fully operational in 1983.

c) Habitat Loss Study in Southwestern Manitoba

This study documented the loss of wildlife habitat in 1060 square km. area of southwestern Manitoba during the eight year period 1971-1979. Results of this study revealed that;

(1) 19% (2,022 ha.) of deer winter range was destroyed from 1971 to 1979,

(2) 17% (6,239 ha.) of native vegetation including summer and winter deer range was lost during that eight years,

(3) 9% of rights-of-way were cleared,

(4) 3,320 wetlands (8.2 per square mi.) were lost and that,

(5) Crown lands constituted a small portion of the existing winter range (13%) but they supported a significant part (28%) of the wintering deer herd. These results indicate the rate and magnitude of habitat loss in Agro-Manitoba and set the stage for program proposals to address this critical problem.

d) Municipal Rights-of-Way Habitat Study

The Rural Municipality of Pipestone was selected for a study to determine the condition of road allowances that have not been developed for roads. Results showed that 57% of the 1816 ha. of undeveloped road allowances was used for agriculture. It was concluded that the native vegetation on these rights-of-way should be protected because it contributed significantly to wildlife, soil conservation and maintenance of natural rare plant communities.

e) Habitat Inventory of Wildlife Management Areas (WMAs) in Southern Manitoba

Detailed habitat cover-maps and area summaries on a township basis will be developed for all WMAs in Agro-Manitoba by 1986 using data generated from the Forest Inventory Program (Forestry Branch). This information will guide habitat enhancement and wildlife management programs.

f) Netley-Libau Vegetation Study

The Netley-Libau Marsh complex has been evaluated to provide management alternatives for future resource developments. A habitat inventory indentified plant communities and provided a vegetation map for the area. Techniques involved use of aerial photographs to map habitat and land use practices. The base map will be used to predict individual plant community responses to various water level management regimes.

2) Wetland Habitat Management

The objectives of the wetland habitat program are to develop and manage Manitoba wetlands and to preserve and enhance wildlife resources common to these areas. This is accomplished with assistance from Ducks Unlimited Canada and other agencies. To date, most of the Department's efforts have been aimed at the larger wetland complexes (Fig. 17) on Crown land; little has been done to maintain and preserve smaller wetlands on private land.

a) Delta Marsh Development

The Delta Marsh, at the south end of Lake Manitoba is one of the best known wetlands in Canada. It has gained international acclaim for wetland and waterfowl research done there. Historically, the Delta Marsh was a major duck production area and has had a long tradition of waterfowl hunting and trapping. Problems with water levels, duck and muskrat production and agricultural encroachment have accelerated since the 1950's and have focused attention on this once productive marshland.

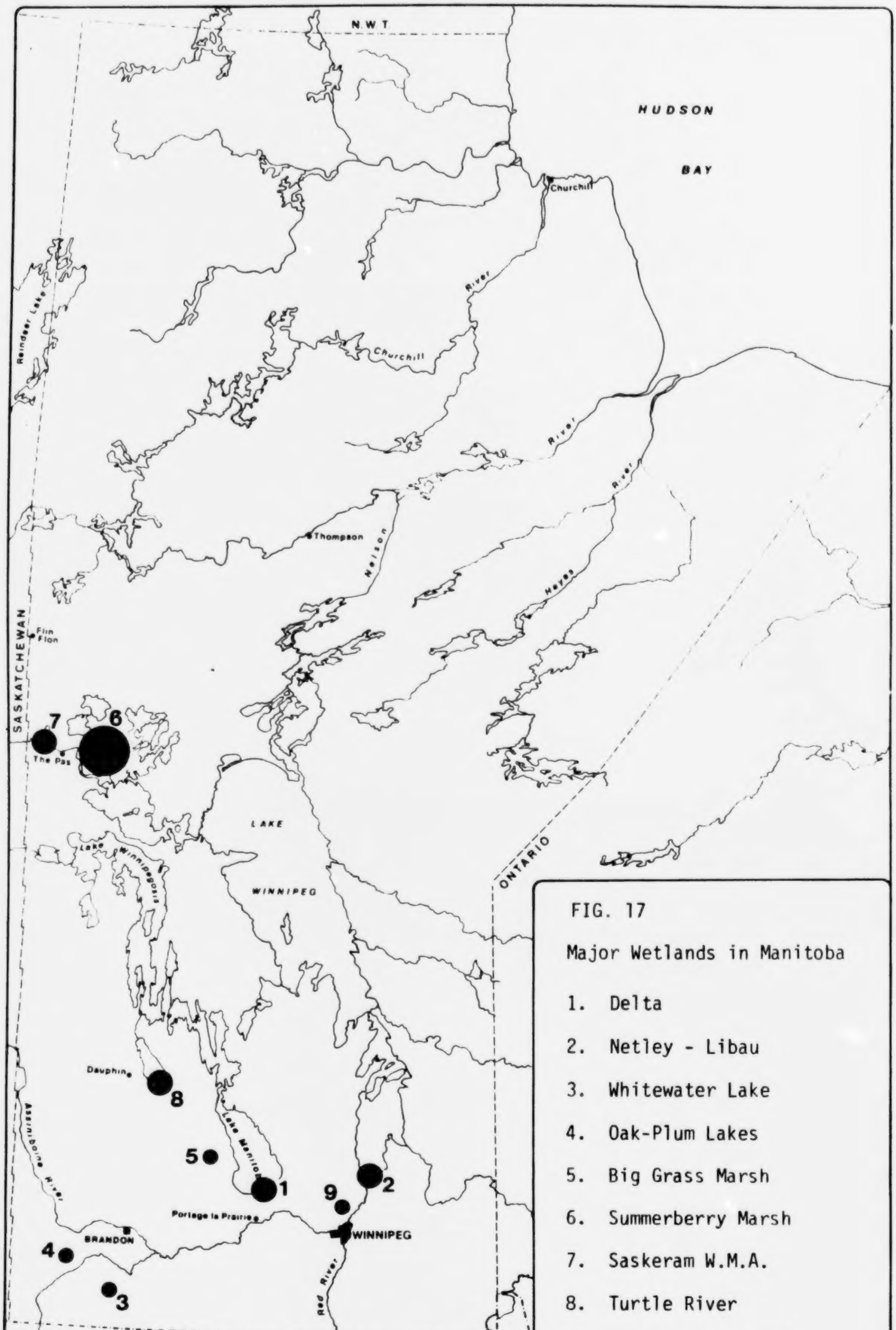
N.W.T.
HUDSON
BAY
Churchill
Reindeer Lake
Churchill
River
River
Nelson
River
Hayes
Thompson
SASKATCHEWAN
Flin Flon
The Pas
LAKE
WINNIPEG
Lake Winnipegosis
ONTARIO
Dauphin
Lake Manitoba
Assiniboine River
Portage la Prairie
BRANDON
WINNIPEG
Red River
U.S.A.
1
2
3
4
5
6
7
8
9

FIG. 17

Major Wetlands in Manitoba

1. Delta
2. Netley - Libau
3. Whitewater Lake
4. Oak-Plum Lakes
5. Big Grass Marsh
6. Summerberry Marsh
7. Saskeram W.M.A.
8. Turtle River
9. Oak Hammock Marsh

The five year Federal-Provincial Development Agreement for the Delta Marsh ended in 1979. This project saw 1,800 ha. of marsh and upland habitat acquired by the Crown and development of a management plan. By 1981, a committee from Ducks Unlimited, the Province and the Delta Waterfowl Research Station had completed a major study of the marsh and had presented a development proposal to government.

Improvement of wildlife production on the Delta Marsh requires water level control and only one unit, Sioux Pass has been completed. The Delta Channel structure was installed in 1982 at a cost of $260,000. This control, along with a structure on Provincial Road 240, ultimately will allow water level control in the East Marsh Unit. About 20% of the Delta Marsh project has been completed. Positive results will not be evident until more of the Marsh has been brought under active management.

At the end of the 1981-82 fiscal year, the Delta Marsh was recommended for inclusion in the Ramsar Convention on the Conservation of Wetlands of International Importance. This action focused additional attention on this vital Canadian wetland.

b) Netley-Libau Marsh

A multi-disciplinary investigation on the Netley-Libau Marshes began in 1979 and finished in 1982. A development and management proposal for this important wetland at the delta of the Red River is under Department review and will be forwarded for consideration in 1983.

c) Summerberry Marsh Development

The 14,175 ha. Summerberry Marsh development project, jointly funded by the Province ($360,000) and Ducks Unlimited ($1.4 million) was completed in 1981. This project has seen a variety of management activities undertaken to enhance overall wildlife production. Construction of nesting islands, level ditching in several impoundments and positive water level control in 31 impoundments will create better habitat for wildlife in this northern wetland. An advisory committee to provide management advice to both the Province and Ducks Unlimited has been formed with representatives from the Province, Ducks Unlimited, The Pas Trappers Association and The Pas Wildlife Association.

d) Saskeram Wildlife Management Area Development

The Ducks Unlimited 21 year lease on the Saskeram Wildlife Management Area (WMA) will end in 1983. Agricultural interests continued to press for use of this valuable wildlife area for agricultural purposes. This WMA was established in partial mitigation for losses of wildlife habitat to the Grand Rapids hydro development. In 1981, the Saskeram Advisory Committee was established with representatives from local interest groups to provide the Minister of Natural Resources with advice on the management of the WMA. The committee is comprised of members from The Pas Indian Band, The Pas Farmers Association, The Pas Wildlife Association and Ducks Unlimited. Representatives from The Pas Farmers Cooperative Association and the Local Government District of Consol have not participated since the initial meeting.

e) Oak Hammock Marsh WMA Development

Oak Hammock Marsh was developed through a cooperative program involving provincial and federal governments and Ducks Unlimited. Its designation as a WMA in 1973 represented the culmination of a major initiative beginning with land acquisition in 1968. Oak Hammock Marsh WMA consists of 3,480 ha. of which 1,620 ha. is upland and 1,860 ha. is wetland. Development of this marsh has greatly improved waterfowl production and has attracted up to 500,000 geese and 100,000 ducks during fall migration. The controlled hunting area surrounding the marsh provides 8,000 hunter days annually and a harvest of 11,000 waterfowl, principally geese. Duck production has been outstanding; records show a 25-fold increase over normal production resulting in 10,000 ducks produced in some years. A major interpretive program has been initiated at Oak Hammock with up to 30,000 people visiting the Marsh annually.

f) Oak Plum Lakes

Attempts to establish a federal-provincial cooperative wildlife management area on this wetland complex were not successful.

To resolve the long standing conflicts between agricultural and wildlife interests, the Minister assigned the problem to the Manitoba Water Commission early in 1982. It is anticipated that the Commission will table its report in 1983.

g) Development Agreements with Ducks Unlimited Canada

Ducks Unlimited has cooperated with the Department of Natural Resources on Crown land wetland projects. During the last five years the Province has signed agreements with Ducks Unlimited totalling over 39,000 ha. of Crown land. In addition, negotiations are continuing on several cooperative projects including Delta Marsh, Saskeram, Netley-Libau Marsh, Oak Hammock Marsh and Dennis Lake.

h) Other Areas - Cooperative Studies

Major cooperative studies to resolve water-related conflicts have been completed on Whitewater Lake and the Big Grass Marsh complexes. Contributors included the Water Resources and Wildlife Branches of the Department of Natural Resources, the Department of Agriculture and Ducks Unlimited. Contributions in the form of advice to the City of Winnipeg and Parks Branch of the Department of Natural Resources have been made on a number of smaller wetlands.

3) Wildlife Management Area Habitat Development

Development in wildlife management areas is aimed at improving habitat and undertaking works to accommodate people's use of the wildlife resource. Habitat improvement projects include cutting forest plots to encourage new growth, planting trees, forage plots and nesting cover and construction of nesting islands, ditches, water level controls and ponds. Other works have focused on making management areas more available for recreational use. These include clearing, mowing and signing of WMA boundaries, construction of parking lots, trails, shelters, observation mounds, interpretive facilities, toilets and upgraded access roads. Most of the annual expenditure of $100,000 has been applied to boundary and access maintenance.

4) Deer Habitat Program

Declining deer populations of the late 1960's and early 1970's culminated in a three year closure of hunting in Manitoba beginning in 1974. One cause of this decline was the lack of quality habitat. When the deer season was re-opened in 1977, $1.50 of the $8.50 deer licence fee was designated for a special deer habitat program. Since that time, about $66,000 has been allotted annually in the Wildlife Branch budget for development and maintenance of deer habitat.

During the last five years, the program has focused on development of native habitat, on planting of tame forage and on winter deer feeding. These projects have been aimed at providing deer with good food sources to prepare for and recover from the rigors of winter.

a) Habitat Development

Techniques such as strip cutting, selective site cutting, drum chopping and bulldozing have been used to rejuvenate native vegetation on Crown land deer range. In addition, legume crops have been planted on old fields and cleared areas to provide high protein forage. To date, 838 ha. have been treated.

b) Deer Feeding

Commercially produced deer rations have been provided to assist herds in heavily hunted areas where rapidly diminishing habitat and severe winter weather have combined to cause considerable hardship to local deer populations. These deer rations have been fed in livestock-type self feeders. Currently, 70 feeders are in place in southern Manitoba, each serving an average of 30 deer. At an average consumption rate of one kg. per deer per day, program costs are near 20 cents per deer per day.

Notwithstanding the best government efforts, deer habitat will continue to decline in Agro-Manitoba at a predictable rate amounting to a 20% loss in the next decade. The future of Manitoba's deer herd depends on the extent to which remnant cover can be protected and suitable rations can be provided, either from natural or artificial sources.

5) Land Lease Program

The Province and the St. Malo and District Wildlife Association signed an agreement on June 13, 1979 to purchase 170 ha. of valuable wildlife habitat and to have it designated as a Wildlife Management Area. The Wildlife Association purchased the land and then leased it back to government. Citizen participation is ensured through a Management Advisory Board responsible for planning and overseeing the project during the term of the lease. The unique agreement also allows the two municipalities involved to continue to receive important tax revenue from the land. The 50 year agreement, believed to be the first of its kind in Canada, has set an example for wildlife organizations wishing to enter into arrangements with government to maintain and enhance wildlife habitat.

Today, governments alone cannot hope to purchase sufficient land to maintain adequate stocks of wildlife habitat. New thrusts such as the St. Malo lease agreement is one option for preserving this resource.

ECOLOGICAL ASSESSMENT

In 1979, greater emphasis was given to assessing the potential impact of industrial, agricultural and urban developments on wildlife populations and their habitat. Department staff assembled information on environmental contaminants, agricultural practices, reforestation, wildlife diseases, hydro development and mineral exploration and provided expert advice as needed. Although there was no Department program to collect new data, staff were able to rely on Environmental Control specialists to conduct some environmental tests.

Numerous proposals relating to hydro transmission corridors in the north have been reviewed in terms of their impact on wildlife and its habitat. In 1980, a proposal to create a new mine and associated power transmission line in Grass River Provincial Park was assessed. Levels of endrin in migrating waterfowl were assessed for potential hazard to human health. The provision of staff consultants to advise on these and similar concerns has been timely and effective in developing the Department's position.

WILDLIFE MONITORING

The objective of the provincial wildlife monitoring program is to estimate trends in and status of wildlife populations to provide optimum use, maintenance and protection of the resource. Included are annual assessments of big game, waterfowl and furbearer populations and their harvest and an evaluation of stabilized waterfowl hunting regulations.

Big Game Monitoring

The overall condition of big game populations in Manitoba is assessed in several ways. Since 1947, the major technique used has been to conduct winter aerial surveys to determine population trends and in some cases, to estimate the total population in specific game hunting areas. Since 1979, all aerial surveys have been improved and total costs have been reduced by 40%.

Population estimates of deer in Game Hunting Areas 27 and 31A in southwestern Manitoba have been obtained since 1975. As these survey areas became better known and sound population data were obtained, the efficiency of conducting the surveys also increased. Less survey area was flown which reduced the total cost and staff time involved. Once adequate population data were obtained, it was decided that such surveys would not have to be flown every year (e.g. winter of 1981-82) if the deer herd did not appear to be in jeopardy.

Sex-age ratios of moose, elk and caribou are used to determine annual changes and long-term trends in their populations. In 1981-82, a population estimate of moose was obtained in Game Hunting Area 16 to confirm that moose numbers were in fact low.

Department staff have achieved success in the use of computer technology for managing big game herds. Since 1980, computer models have been developed for big game populations to help Department staff and resource users understand how elk, moose and deer populations are affected by various mortality factors. Computer simulations of big game populations undoubtedly will prove even more valuable during the next decade.

Other activities that assist in evaluating the status of big game populations include:

1) Assessment of winter severity. The severity of winter weather greatly influences the reproductive success and survivorship of big game in Manitoba. Information collected over a period of years assists managers in predicting the condition of big game populations and in making annual adjustments to maintain adequate stocks.
2) Big game carcass collections. Determining body fat reserves, parasite load and the number of fetuses in big game carcasses by autopsy aids in annual assessment of local herds.
3) Conducting dead deer surveys. Estimates of deer dying in winter are obtained in several areas of southern Manitoba to assist in determining the size of the deer herd.

4) Big game jaw collections. Assessment of the age structure of big game populations is made using big game jaw samples provided by hunters each fall. Wildlife cooperator crests have been an effective means of encouraging hunters to turn in the lower jaws of big game to Department staff.

5) Hunter check stations. A measure of hunter effort, success and distribution of moose and elk harvests is obtained at voluntary hunter check stations. Biological information related to sex and age of the harvest, body condition and reproductive status is also collected. In 1981-82, a check station was operated at Carberry for elk. Moose check stations were operated in the Kettle Hills and at Powerview, Lac du Bonnet and Hecla Island.

6) Hunter questionnaires. Each year questionnaires are distributed to hunters to estimate the number and location of animals harvested and hunter success rates. This method, as well as hunter check stations, aides managers in assessing the hunting mortality of and hunting pressure on big game populations.

7) Conservation Officer surveys of the game harvested by Treaty Indians. Monthly records of the subsistence use of big game populations are maintained through field checks of hunters and interviews with band Chiefs and members. This information provides some assessment of this mortality factor on herds in broad areas of Manitoba.

Waterfowl Monitoring

Waterfowl monitoring is a cooperative effort among this Department, Canadian Wildlife Service, United States Fish and Wildlife

Service, Ducks Unlimited and a number of state wildlife agencies along the Mississippi Flyway. Department staff take a lead role in the waterfowl banding program and participate in activities related to assessing the impact of the annual harvest on waterfowl populations. The intent is to provide the biological information required to meet the current and future demand for ducks and geese.

The objectives of waterfowl monitoring are to:

1) assess the productivity of ducks and geese nesting in Manitoba,
2) determine survival and mortality rates and harvest distribution throughout the year, but particularly during the hunting season and to,
3) evaluate the impact of stable, long-term harvest regulations on waterfowl populations.

A number of techniques have been developed to assess population levels and fall harvest:

1) Spring breeding pair counts of ducks and geese are made by ground and aerial surveys throughout Manitoba.
2) Nest searches are made to determine productivity and waterfowl use of wildlife management areas.
3) Nesting habitat conditions and availability are estimated.
4) Waterfowl are banded to determine survival rates, harvest distribution and the effects of long-term regulations on duck populations.
5) Hunter questionnaires, spy blinds and hunter bag checks are used to determine the level of harvest by hunters.

A cooperative effort by the various agencies is required to muster sufficient manpower and financial resources to undertake this complex and enormous task. The high quality of the biological information obtained has led to liberal goose hunting seasons for the past 10 years and has facilitated adjustments in duck hunting regulations. After an intensive analysis of duck population information in the mid-1970's, management agencies agreed to stabilize annual harvest regulations and to leave them unchanged for five years (1979-1983). A program was implemented to evaluate these regulations; the next Five Year Report to the Legislature will contain the results of this evaluation.

Furbearer Monitoring

The objective of furbearer monitoring is to determine annual changes in population levels and to compare these changes to long-term trends for each species. Most furbearer populations are monitored on the basis of fur harvest levels assuming that the harvest level reflects the general level of the population. This is not a sensitive indicator of population status but for many species such as lynx, fisher, marten, weasel, raccoon and mink, it is the only technique that is available.

Aerial surveys of muskrat houses on the large marshes such as Summerberry, Netley-Libau and Oak Hammock provide population estimates and assist in setting spring and fall trapping seasons. Aerial and ground surveys of fox and coyote populations in southern Manitoba have been attempted with mixed results. These surveys show promise and should reflect population levels with further refinements.

General status of furbearer populations and harvest levels are assessed by:

1) determining the condition (body fat reserves, parasite loads and reproductive status) of furbearer carcasses by autopsy,
2) trapper questionnaires determining level of harvest, trapping effort and trapline productivity and by
3) monthly Trapline Officer reports from Registered Traplines showing trapline productivity, trapping effort and harvest levels.

Techniques to directly assess the status of furbearer populations are unavilable or not feasible in vast areas of northern Manitoba. The current monitoring program for most species is adequate and meets the requirements for wild fur management.

WILDLIFE INVESTIGATIONS

Relevant biological information, effective survey techniques and sound game harvest statistics are essential in supporting wildlife management programs. Many agencies have made significant contributions to field and laboratory research in Manitoba in addition to that done by Department staff or supported by grants from the Department. Government agencies involved were, Department of Indian and Northern Affairs, Canadian Wildlife Service, United States Fish and Wildlife Service and several state natural resource agencies. Private organizations have included Ducks Unlimited, Queens University, the Delta Waterfowl Research Station and the World Wildlife Fund (Canada). Their research efforts and funding usually exceeded those of Manitoba and they have contributed much to our understanding of polar bears, Canada and snow geese, canvasback ducks and many non-game species. For example, the World Wildlife Fund (Canada) spent nearly $82,000 or 18% of its entire budget in Manitoba during 1982.

Although these outside agencies and organizations have consistently supported research in Manitoba during the 1970's, the level of Departmental wildlife grants to Manitoba graduate students and Manitoba universities has been reduced by 60 percent.

Investigations carried out by Department staff or supported by Department grants during the last decade have done much to further wildlife management in Manitoba. The following is a list of major projects: 1) Level ditching to improve muskrat habitat - An evaluation of eight level ditching sites created from 1976 to 1978 in the Interlake was completed in 1981. This technique to increase muskrat production proved successful and is recommended for use in other areas of the Interlake.

2) Evaluation of humane traps - Although humane trap testing began in Manitoba in 1958, it is only within the past five years that suitable facilities at Tramping lake have been developed to evaluate new trap designs properly. Specific sets and lures as well as 10 new trap designs are being examined.

3) Canada goose investigations at Cape Churchill - Long-term studies of Canada geese near Cape Churchill have continued since the late 1960's. New techniques to determine productivity and gain greater understanding of breeding biology of the population have contributed greatly to better use of the resource. In 1982, Manitoba contributed $8,000 of the $40,000 required to carry out these studies.

4) Evaluation of roadside reflectors to deter deer - An estimated $250,000 in property damage results from deer-vehicle accidents each year in Manitoba. Nearly one in 100 of these accidents results in personal injury. In 1981, the Department evaluated the effectiveness of roadside reflectors installed along Grant Avenue in Winnipeg to reduce deer-vehicle collisions. No dawn, dusk or night-time accidents were reported in the area after reflectors were installed. The Department is now cooperating with the Department of Highways to install reflectors in other areas of Manitoba.

5) Restoration of peregrine falcons - In 1981, a rearing and release program for Peregrine falcons began in cooperation with the Canadian Wildlife Service and the Alberta government to restore this endangered falcon to southern Manitoba. Techniques for feeding and rearing young falcons were developed and four were successfully reared and released by September. The overall success of this program will not be known for several years but the ability to raise falcons in captivity with minimal effort and cost has been demonstrated.

6) Impact of military training programs on elk at CFB Shilo - Public concern was expressed over the impact of military training programs on the elk populations at CFB Shilo when the federal lease was renewed in 1973. Studies supported by the Department demonstrated that the elk population was not in jeopardy and that it continued to increase in number and distribution throughout the 1970's. Recreational elk hunting occurred for the first time in 1979, partly on the strength of the biological evidence gained from these investigations.

7) Great gray owl investigations - Long-term investigations of the Great Gray Owl have been under way in Manitoba since 1968. The results of an extensive effort to understand and protect this rare owl included successful development of artificial nests, development of unique capture and banding techniques and knowledge of habitat requirements necessary to protect this bird in areas of peat extraction and timber cutting.

8) Winnipeg deer herd investigations - Studies of the Winnipeg deer herd conducted in the mid-1970's provided information on the size and distribution of the deer herd.

9) Woodland caribou investigations - Long-term studies of woodland caribou in Grass River Provincial Park and east of Lake Winnipeg during the 1970's have substantially increased our knowledge of this species. Additional information on other herds is still needed to understand how to protect suitable habitats.

10) Black bear investigations, Duck Mountains - In 1980-81, the Department paid $64,000 for 175 claims for beehive damage by black bears. The Duck Mountain periphery near Garland has been the area with the most complaints. In 1979-80, a study was conducted to identify problem-causing bears and to examine ways of improving damage control.

11) Deterrents for polar bears - Since 1978, the Department has co-operated with the Canadian Wildlife Service and the Northwest Territories Wildlife Service to develop polar bear deterrents to protect the lives and property of northern residents. In tests conducted at Cape Churchill, deterrents such as rubber bullets fired from an anti-riot gun, proved effective without causing significant harm to the bears. Several deterrents will be available to Department staff and possibly to Churchill residents within the next two years.

12) Reproductive and denning studies of polar bears - The largest known polar bear denning area in the world is located in the Cape Churchill WMA. Long-term investigations conducted by the Canadian Wildlife Service in this denning area have contributed directly to Departmental polar bear management aimed at protecting denning bears and establishing allowable harvest quotas for Manitoba and the Northwest Territories.

13) Blue bird nest box project - In 1954, the Brandon Junior Birders Club under the direction of Dr. John Lane began building and setting out nest boxes for eastern and mountain blue birds. Since then several thousand boxes have been placed along highways and railroads across southwestern Manitoba and into Saskatchewan. Participants have contributed much to the literature on blue birds from banding efforts and nest records. Among the most successful wildlife projects in Manitoba, it required little government support except for recognition and advice from Department staff. The credit for its success goes to the late John Lane and his wife Nora Lane.

Less than one percent of the Department budget (15 percent of the Wildlife Branch budget) is devoted to wildlife investigations. Although this is a miniscule part of Departmental wildlife expenditures it enures quality control and effective application of management effort. Given the trends in supply and use of wildlife, greater need for wildlife investigations is anticipated over the next five years.

RARE AND ENDANGERED WILDLIFE MANAGEMENT

The objectives of the rare and endangered wildlife program are;

1) to protect current populations of wildlife species that are known to be in trouble,
2) to restore where feasible, populations of these species that are in jeopardy and
3) to assess population status of those species about which there is little known.

There are 42 species of plants and animals considered rare or endangered in Canada by the Federal-Provincial Committee on the Status on Endangered Wildlife in Canada (COSEWIC); 19 of these occur or occurred at one time in Manitoba (Table 7). Some species such as the pronghorn and mule deer, although common elsewhere in their geographical range, no longer occur in viable populations in Manitoba. The biological status of many other species (e.g. bald eagles, osprey, western hognose snake) remains unknown.

The major thrust has been to inventory remaining populations, to initiate recovery projects for peregrine falcons and wood bison and to legislate full protection for species such as the cougar and Ross' gull. During the past five years, resource inventories of plants and animals have been conducted in the Whiteshell, Hecla Island, Beaudry, Spruce Woods, Nopiming, Turtle Mountain and Duck Mountain Provincial parks and in the Mantagao Lake Wildlife Management Area. A special survey of peregrine falcons in northern Manitoba was attempted in 1980.

A long-range project to rear and release young peregrines began in Winnipeg in 1981. An extensive survey of colonial nesting birds in 1979 confirmed that some species of terns and grebes were in decline whereas others such as white pelicans, cormorants and some gulls had stable to increasing populations. The large number of pelicans in the province can be misleading because they are declining elsewhere in their geographical range. Manitoba now contains a majority of the Canadian population of these birds. Nesting areas of many colonial- nesting birds are vulnerable to human disturbance. With increased recreational activity in these areas, protection will be required.

Special investigations continued on the great gray owl and new studies were initiated on the northern prairie skink, western hognose snake and white pelicans by the end of 1981.

In 1980, legislation was passed to protect the recently established Ross' gull colony at Churchill from human harassment. Churchill is the only easily accessible place in the world to view this rare species hence, birdwatchers (1,000 in 1981) travelled from as far as Japan, West Germany and England to see these birds. Department action on behalf of Ross' gull has received good support by local residents and various naturalists groups.

Much remains to be done in determining the status of rare and endangered species and in developing effective programs for their protection or restoration. To date, much of the success of this program has been achieved through the individual efforts of a few staff members, often with little funding from the Department. Increased support for rare and endangered species resulted from re-organization of the Wildlife Branch in 1978. A formal program to deal with rare and endangered species has just begun and greater emphasis will be placed on these species in the 1980's.

Table 7. Rare and Endangered Wildlife in Manitoba*

Category	Birds	Mammals
Rare (any species that exists in low numbers or in very restricted areas because of its biological characteristics or because it occurs at the fringe of its range).	Trumpeter Swan Caspian Tern Ross' Gull Great Gray Owl	Plains Pocket Gopher Gray Fox Wolverine
Threatened (any species that is likely to become endangered if factors affecting its vulnerability do not become reversed).	White Pelican Piping Plover Peregrine Falcon-Arctic Form Ferruginous Hawk Burrowing Owl	Prairie Long-tailed Weasel
Endangered (any species whose existence is threatened with immediate extinction through all or a portion of its range, owing to the action of man).	Whooping Crane Peregrine Falcon-Southern Form Greater Prairie Eskimo Curlew	Wood Bison
Extirpated (any species no longer found in Canada but occurs elsewhere in its geographical range).		Swift Fox

*Designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). To date, no plants, fish, amphibians or reptiles found in Manitoba have been designated.

Ecological Reserves

The ecological reserves program was established in 1973 to preserve and protect representative areas of various ecosystems in Manitoba for scientific and educational uses. Part of this mandate was to protect unique, rare or endangered plants and animals. In 1981, this program came under the purview of the new Ecological Reserves Act.

By 1981-82, five ecological reserves had been established under the Crown Lands Act: Red Rock Lake, Reindeer Island, Wampum Red Pine, Brokenhead and Pocock Lake. Nearly 40 candidate sites have been reviewed for their overall suitability.

WILDLIFE INFORMATION AND EDUCATION

The wildlife information and education program is aimed at acquainting Manitobans with the values and attributes of the wildlife resource. The program is a composite of many activities working toward a common goal - a well informed public that will support and participate in wildlife management program development and operation. Such participation is vital to the wise use and maintenance of the wildlife resource. Quite simply, government requires public support if it is to fulfill its obligation to maintain and conserve the wildlife resource. Without a substantial bolstering of wildlife education activities, public support for wildlife programs cannot be assumed given trends in lifestyle, competing demands for resources and the complexities of public resource administration. Following are highlights of the wildlife education program in recent years.

National Wildlife Week

National Wildlife Week is sponsored by the Canadian Wildlife Federation and its provincial affiliates in cooperation with government wildlife management agencies. To focus on the value of wildlife, the week is centered around the April 10th birthday of Jack Miner - one of Canada's earliest conservationists. A high profile was attained in 1982 with the appointment of professional football player Joe Poplawski as Manitoba's Wildlife Ambassador. A school children's art contest was expanded to include a poster and poetry competition; each drew over

2,000 entries. Teachers in grades one to eight received some 10,000 wildlife educational kits in both English and French. A film festival, a photography contest and public exhibits at sportsmen shows and shopping malls rounded out the program.

On the national scene, Manitoba has joined forces with Ontario and British Columbia in developing a comprehensive plan for National Wildlife Week programs. Scheduled for completion in 1983, the plan will serve as a framework and guide for future programs.

Wildlife Management Area Tours

The unique character of Wildlife Management Areas continues to appeal to a growing number of Manitobans. Of chief importance is Oak Hammock Marsh, a 3,480 ha. mosaic of marshland and prairie located within a short distance of downtown Winnipeg. In 1981, some 30,000 Manitobans and tourists visited the marsh to view wildlife, particularly the hundreds of thousands of waterfowl that stop over during spring and fall migration. That same year, 3,500 visitors received guided tours of the marsh between mid-May and late October. This demand for quality wildlife on wild lands prompted the allotment of $264,000 for access and visitor service improvements in 1982. The challenge of the 80's will be to meet the increasing demand for wildlife interpretive programs and visitor service facilities with existing levels of operational funding.

Department staff continue to take groups of students on tours of the Souris River Bend, Mantagao and Narcisse Wildlife Management

Areas. Plans are currently underway to focus on the unique character and significance of the Narcisse snake dens, wintering home for thousands of red-sided garter snakes.

Wildlife Seminars

A newly established series of wildlife seminars arose from a public demand for information about the management, biology and behaviour of certain wildlife species. Manitoba's first moose hunter seminar attracted over 100 participants in a full day and evening of lectures and a shooting proficiency test. This success prompted plans to expand the seminars to include waterfowl management. Co-sponsored by the Department and the Manitoba Wildlife Federation, the seminar series is now an integral part of the Department's wildlife education program.

Displays and Exhibits

Displays and exhibits are high profile activities which bring before the public eye a variety of messages on the wise use of Manitoba's wildlife resources. The value and function of Manitoba's wild fur industry is conveyed each year to some 11,000 people who visit Whittier Park during the seven day Festival du Voyageur. Sponsored by the Manitoba Registered Trappers Association and the Department, the program features a Trappers Cabin outfitted with humane trap sets and raw furs. Bona fide trappers are on hand to speak in both French and English on trapping.

Wildlife exhibits are set up at five to seven major functions annually, reaching 80,000 to 100,000 Manitobans. These exhibits are valued for their large number of direct contacts with the public and their low investment in material and staff time.

Publications

Publications are an important part of the wildlife education program; they run the gamut from hunting brochures to bird lists. The Wild Dogs, The White-tailed Deer in Manitoba, Plans For Bird Houses and The Trappers Guide are but a few of the publications which received international recognition and prestigious awards for their excellence and outstanding quality.

New publications will cover the management, use and ecology of species such as moose and furbearers. Because of the dearth of sound, wildlife management-oriented information within the school system, high priority is also placed on providing materials for school children.

Printed materials also include some 20 to 30 news releases and 15 to 30 articles staff write for various magazines and newspapers each year. The electronic media are also used effectively via radio and television interviews and announcements. A weekly radio program, Resources News, is a major disseminator of wildlife information, on many radio stations in Manitoba.

Speaking Engagements

Throughout the year, staff receive numerous requests (150 in 1981) to speak to wildlife and naturalist groups, business organizations, service clubs, students and organized youth groups such as 4-H, Girl Guides and Boy Scouts on various aspects of wildlife conservation. Staff are reluctant to turn down these requests. The time devoted to this activity, however, has meant that other tasks, particularly the production of printed material, has not been fully accomplished. In the case of school and youth groups, staff intentionally keep a low profile for fear of creating a demand they could not meet.

Public appearances, more so than any other aspect of the wildlife education program, require a realignment of staff time if the limited resources available to the Department are to be put to the best possible use.

Public Participation

The Department prides itself on the relationship it has established and nurtured with various advocate wildlife groups and citizens over the years. In working toward mutual trust and cooperation with these wildlife enthusiasts, staff continue to seek ways to make public participation a meaningful aspect of program development. Initiatives that lend themselves to public input include managed hunting programs, hunter check stations, field work in wildlife management areas, nature interpretation projects, the design and administration of wetland habitat retention programs and the designing of educational material. The Department has provided grants of up to $7,000 annually to the

Manitoba Wildlife Federation, the Manitoba Naturalists' Society and the Delta Waterfowl Research Station as well as occasional grants to private groups for special projects.

Hunter Education

The hunter education program is distinct from the hunter and firearm safety program and the wildlife seminars covered elsewhere in this report. Although it is noted that hunter ethics is one of several topics covered in the firearm safety program, its primary focus is on the safe handling and use of firearms. The seminar series appeals to a broad spectrum of Manitobans, not only recreational hunters.

Manitoba's hunter education program has concerned itself almost exclusively with fostering friendly relations between hunters and landowners. Through joint efforts of the Manitoba Wildlife Federation and the Department, "Operation Respect" was initiated in 1971 and continues today, albeit at reduced levels. A variety of messages promoting ethical and responsible hunter behaviour have also been carried by a poster, radio and television campaign. Unfortunately, such efforts have been piecemeal with little overall continuity. Any concerted effort to improve relations between hunters and landowners and the public's impression of hunters, will require a major infusion of funds and realignment of staff time.

Hunter and Firearm Safety Program

The purpose of this program is to provide a comprehensive training in firearm safety to Manitoba's recreational hunters and other people who wish to become familiar with firearms. It also promotes ethical hunter behaviour in the field.

The program was first offered in 1964 on a voluntary basis and in 1969 became mandatory for all first-time hunters and hunters under 19 years of age. Since 1969, the program has had a marked affect on reducing the number of firearm accidents in Manitoba.

In the period from 1972 to 1981, legal recreational hunting for big game and game birds accounted for 24 percent of the total number (323) of firearm accidents. Sixty-five percent of firearm accidents within that same period were attributed to non-hunting accidents and the hunting of rodents, rabbits and pests, all of which are beyond the bounds of the hunter and firearm safety program. The remaining 11 percent is connected with various aspects of illegal hunting. The program has trained 83,319 graduates as of March 31, 1981. Ways of broadening the scope and content of the program and expanding its mandate to include the hunting of small game are presently being studied.

PROBLEM WILDLIFE MANAGEMENT

Problem wildlife management programs range from polar bear control in Churchill to waterfowl crop damage control in the agricultural zone of Manitoba. The Department is responsible for the development of wildlife damage control programs based on contemporary wildlife management technology and in accordance with wildlife policy. That policy states in part *"responsibility for damage in any form caused by wildlife will be shared in relationship to what people can reasonably do for themselves and to the amount of damage resulting from government activities"*. It is expected that individuals will make a reasonable effort to solve their wildlife damage problems with technical advice from the Department. Where the problem is beyond the scope of the individual or in cases where human safety may be threatened, (i.e. problem polar bears at Churchill), Department staff will take appropriate action. The Department will take a more active role in damage prevention where the Province has implemented a project which results in increased wildlife damage.

Polar Bear Control

As the Hudson Bay ice recedes each spring, polar bears come ashore in the region of Cape Tatnum and the southern reaches of Cape Churchill. Throughout the summer, they search for food along the coastline. By July, the bears congregate at Cape Churchill awaiting the formation of ice on Hudson Bay so that they can resume hunting seals. Some of these bears wander toward the town of Churchill where they pose a threat to people and property.

The program began in 1970 to provide protection for people and property. Protection from unwarranted destruction and harassment is also provided to the bears. The major thrust is to remove polar bears from the town of Churchill was well as from Akudlik and Dene Village. Goose Creek and Camp Nanuk, summer recreation areas, require less attention.

About 120 bear reports are dealt with each year. Bears are either scared from the area using noise making devices, or are live-trapped for relocation. As a last resort, problem bears are destroyed. A new polar bear holding facility, under construction near Churchill, should reduce the number of bears that have to be killed. Problem bears will be retained in these cages until ice forms on Hudson Bay, then released. The Department has an ongoing public education program to increase awareness of the potential dangers of polar bears. This program has been effective in that no human injury or death has occurred since 1967 and property damage has been reduced.

Waterfowl Crop Damage

Wild ducks, geese and sandhill cranes cause significant damage to grain crops in swath during the late summer and fall. Cranes also feed on farmers' crops in the seedling stage. The Department has two programs designed to reduce the effects of damage by field-feeding waterfowl: the waterfowl crop damage prevention program and the waterfowl crop damage compensation program.

1) Prevention: This is by far the most desirable approach. The frustration of farmers is eased or significantly reduced when crop damage is prevented. The Department in turn is less likely to pay compensation. Preventing waterfowl crop damage reduces financial losses suffered by farmers and helps to foster a more positive attitude toward wildlife, habitat preservation and hunters. Participation in this program is a prerequisite for the sharing of costs between Manitoba and Canada for waterfowl crop damage compensation.

The program is available to all Manitoba farmers who suffer crop damage by waterfowl. The Department assists farmers by providing materials for scarecrows and by deploying noise making devices such as propane bangers and cracker shells. Lure crops are effective in attracting waterfowl away from farmer's fields. Lure crops of barley are planted by the Department each year on Crown lands at Oak Hammock Marsh, Grant's Lake, Delta Marsh and Pleasant Valley. The cost of planting such crops averages $60 per acre whereas compensation payments to farmers can exceed $100 per acre. Crops on private land are purchased by the Department as required and set aside as lure crops. Crown land lure crops are preferred since the cost of purchasing a private crop can be more than double the cost of planting a lure crop on Crown land. Program costs generally range between $200,000 to $300,000 annually, but vary greatly with weather conditions during harvest. In 1981-82 costs were $257,768. Manitoba and Canada have shared these costs on a 50:50 basis since 1972. Department staff respond to 300 to 500 waterfowl damage complaints each year.

2) Compensation: This program partially compensates grain producers for crop losses caused by waterfowl. Compensation is available to all Manitoba farmers whose crops are damaged by waterfowl. Manitoba Crop Insurance Corporation agents appraise the value of crop losses when contacted by claimants. Compensation costs vary between $300,000 to $500,000 annually. In 1981-82, compensation payments of $362,355 were paid to 252 claimants with an average payment of $1,440. Canada and Manitoba have cost-shared the program on a 50:50 basis since 1972.

   In 1981, the Department of Natural Resources initiated the transfer of this program to the Department of Agriculture; all aspects will be consolidated in one Department by April 1, 1983.

Big Game Damage

White-tailed deer habitat has decreased in both amount and quality over the past several decades. This has forced deer to rely increasingly on farm crops as a food source. Manitoba elk populations generally are situated in islands of habitat such as Riding Mountain National Park, Duck Mountain Provincial Park and Spruce Woods Provincial Forest. Alfalfa, timothy, corn and sunflower crops in surrounding areas are subject to depredation by elk. Bears frequent wooded areas and often travel along creeks or streams. Beehive yards often are situated near wooded areas for protection and near streams since water is required for bees to produce honey. In such areas, bears often turn to beehives as a food source.

To assist farmers and beekeepers in reducing damage by deer, elk and black bear, the Department has two programs; one is designed to prevent damage and the other to compensate producers for damage which occurs.

1) Deer and Elk Crop Damage Prevention: The program is province-wide in scope and is delivered by Regional Services Branch staff. The Department has attempted to prevent deer and elk damage by using scaring devices such as propane bangers and cracker shells for many years. In 1980-81, a special deer-elk damage prevention program was initiated mainly to reduce damage to stored forage during the winter. Since then, three techniques have been tested and successfully used:
   a) Bloodmeal is a slaughter house by-product which is dusted onto haystacks. Deer and elk find it offensive and are repelled from the treated forage.
   b) Intercept feeders are box shaped calf-feeders which are filled with a special ration and strategically placed so that deer or elk stop at the feeders rather than venturing into haystack yards.
   c) Deer-elk-proof fences are constructed at sites where damage is severe and other techniques have not been effective. The Depart-

ment supplies materials to build up to two fences per year at an average cost of $3,000 per fence. Fences will last from 15 to 20 years and prevent $500 or more worth of damage per year. The farmer is required to construct the fence but the Department maintains ownership of the material.

2) Black Bear Damage Prevention: Producers whose crops (usually oats) are damaged by black bears are assisted by the Department in capturing or killing problem bears. Until 1980, bear damage to beehive yards was dealt with by removing nuisance bears. Since then, however, beekeepers have been encouraged to take an active part in the damage prevention effort. The bear-proof electric fence is effective in excluding bears from beehive yards and beekeepers have been encouraged to use them. A beekeeper can justify the cost of the fence ($300) if it prevents even one case of bear damage. A brochure has been prepared to provide technical information on fence construction. In 1981, a Black Bear Control Area was established on lands to the east of the Duck Mountain Provincial Park where the majority of problems have occurred. In this area, more liberal hunting seasons are permitted. The Manitoba Beekeepers Association have supported the view that beekeepers must be active in the damage prevention effort.

3) Big Game Damage Compensation: Manitoba Crop Insurance Corporation agents appraise the value of damage to crops and Natural Resource Officers appraise the value of damage to beehives. Each year, the

Department pays compensation to 200 to 300 producers amounting to $100,000 to $215,000. The program relieves farmers of much of the financial burden from deer, elk and black bear damage.

Problem Beaver Control

Beaver build dams across waterways such as rivers, creeks and drainage ditches to maintain adequate water depths around their lodges. Damage results when these waters flood roads, farm fields and buildings. The purpose of this program is to assist citizens and municipalities to control damage by removing dams and problem beaver. More than 500 beaver damage complaints are handled each year by the Department.

A more intensive program began in 1981 to stop the serious beaver damage to private and municipal land around Riding Mountain National Park. Department staff and beaver trappers hired by the Department respond to complaints. To finance this special program, the Province negotiated a three year 50:50 cost-shared agreement to begin April 1, 1982 with Parks Canada which provides for an annual budget of $60,000. Representatives of Local Government Districts and Rural Municipalities around the Park are pleased with the program. A more effective and long-term means of dealing with the problem would be to reduce beaver populations within Riding Mountain National Park. This approach, however, is contrary to Parks Canada policy.

Wolf, Coyote and Fox Control

Timber wolf numbers occasionally build up in the agricultural areas situated on the fringe of the wolf's natural habitat. When this occurs, wolves may prey upon domestic livestock. In addition, wolves sometimes venture near or into northern communities. The Department assists people by providing technical advice on removal techniques and by hiring trappers to remove problem animals. The magnitude of the wolf problem varies each year; usually about 50 complaints are received. Foxes and coyotes frequently kill poultry and other domestic livestock. When such problems occur, the Department assists complainants in removal of problem animals.

CONCLUSION

Manitobans relate strongly to wildlife. Their heritage and traditions have been shaped by an abundant resource. They have come to regard wildlife as a barometer of environmental quality because there can be no stronger declaration about the health of the land than the abundance and diversity of its wildlife. Consequently, it is Government's resolve to ensure that viable populations are maintained; no species will be permited to decline to levels where recovery is doubtful.

In that respect, most species are responding adequately to environmental changes and user demands. However, there are noteworthy exceptions: moose populations are declining sharply; barren-ground caribou cannot withstand current harvest rates if herd restoration is to occur; muskrat production is flagging due to habitat loss; some species of waterfowl cannot withstand current harvest rates and habitat deterioration; woodland caribou, lynx, fisher and marten require special habitat protection; deer will not be able to sustain current use levels over the next five years due to continued loss of habitat; elk populations are not able to meet current demand and are expected to fall further behind as uncontrolled use increases; northern leopard frog populations continue to be depressed by disease.

On the positive side, polar bear populations are responding well to protection. Black bears and several northern populations of furbearers can support increased use. Other species too numerous to mention are similarly increasing or maintaining stable populations and continue to benefit Manitobans and contribute to the maintenance of ecosystems.

Within limits, the wildlife resource is renewable. Its economic and social benefits can be a perpetual heritage if Manitobans accord it modest but timely attention. In this connection, two factors will determine the future of wildlife in Manitoba: availability of habitat and government's capacity to control harvest.

Habitat in settled Manitoba has deteriorated significantly in the past decade and, barring major interventions, this trend can be expected to continue. If wildlife are to survive at levels which will allow reasonable use, habitat preservation must become a government imperative. Cost rules out public acquisition of all the habitat that will be required to sustain wildlife populations. Hence, this approach will have to be reserved only for the most essential and vulnerable parcels. The remainder will have to be secured through a variety of means: land use policies which protect wildlife habitat must be strengthened and supported; land tax structures must be altered and various incentives offered to encourage habitat retention on private land; wildlife habitat needs must be integrated more effectively into the plans and operations of other major land users; encouragement and direction must be given to private conservation organizations which are willing and able to help protect and develop wildlife habitat. Finally, greater wildlife production must be obtained from wildlife management areas and other lands set aside wholly or in part for wildlife.

Treaty Indian use of wildlife has increased significantly and at current rates will necessitate further curtailment and in some cases, cessation of licenced recreational and tourist use. In extreme cases, the viability of some wildlife populations could be jeopardized. It is hoped that consultations now underway between Department staff and local Indian bands can bring about sufficient change in harvest patterns to enable maintenance of intensively used herds.

As wildlife stocks decline in the face of increased use and decreased habitat, the public will call for refined management and allocation of remaining stocks. In particular, greater attention to rare and endangered species will be demanded. These are reasonable expectations but they will not be easily met. Significant efficiencies have been achieved in wildlife administration and management in the past five years. Further improvements will be incremental - not quantum in scale. Hence, greater effort will have to be devoted to attracting cooperative initiative and funding from other levels and agencies of government as well as from private organizations.

As habitat shrinks and managers strive to produce more wildlife on less land, wildlife damage will become more acute. Increased efforts will be required to mitigate the disbenefits of problem wildlife.

Night-hunting, illegal sale of wildlife and illegal hunting on private land are expected to be the most serious problems in wildlife law enforcement over the next five years.

In coping with the foregoing problems, managers will be encouraged to resist the obvious recourse of adding to an already complex web of legislative restrictions. However, stronger (but not necessarily more complex) legislation may be the only means of coping with some issues.

Wildlife management over the next five years, perhaps more so than any time previous, will require the support of a well informed public. Despite their value to society, wildlife resources are often taken for granted and concerns are raised about their status only after their continued existence is seriously jeopardized or beyond reasonable hope. The very abundance and variety of wildlife to which Manitobans have become accustomed has lulled us into a false sense of security respecting its continued existence. For a variety of reasons, those who use and cherish wildlife the most have not been particularly adamant in its defence. If wildlife is to survive this must change. An awakened public awareness is the best (and perhaps only) security wildlife resources have. No significant protective effort can be sustained without public backing. Attempts to rebuild a devastated resource will be expensive and largely unsuccessful. It is preferable to adopt a strategy which will avoid such unnecessary costs. The alternatives of not doing so are quite clear.